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THE

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Yours sincerely
J. R. Martin

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ON

APOPLEXY AND EPILEPSY;

AND ON AN

HOSPITAL FOR EPILEPTICS.

Being an Outline of the Croonian Lectures, delivered at the Royal College of Physicians in 1852.

BY MARSHALL HALL, M.D., F.R.S.

(Continued from June No., p. 439.)

I propose tracheotomy, not as a remedy for apoplexy, or for epilepsy; but for stertor or paralytic Laryngismus and its effects, in the former malady; and as a preventive and security against spasmodic Laryngismus and its effects—viz., Convulsion, and the injury apt to be inflicted on the cerebrum and the medulla oblongata, on the mind and limbs, in the latter dire calamity.

In the apoplexia gravior, with laryngeal stertor, tracheotomy affords the chance for life; in the epilepsia gravior, tracheotomy supersedes the laryngismus, and the Convulsion and its dire effects.

LECTURE II.

On Laryngismus.

73. Laryngismus has scarcely taken a more prominent place in medical observation and writings than trachelismus. The term has hitherto been applied and limited to a form of infantile convulsive affection. It ought to be extended and applied to *all* affections of *the Larynx* of a secondary and functional character, and not dependent on alteration in the structure of the larynx itself.

74. As in the case of trachelismus, I propose to trace this affection through its different forms, back to its various origin, and onwards to its most dire and dangerous consequences.

75. Trachelismus is, I believe, always spasmodic. Laryngismus is sometimes of a *spasmodic*, sometimes of a *paralytic* character.

76. The beautiful experiments of Legallois give us the type of the *paralytic* form of this affection. The recurrent laryngeal nerves being divided, the rima glottidis collapses partially and induces paralytic laryngismus.

77. A similar effect is produced whenever the influence of the cerebrum or of volition is withdrawn from this organ.

78. Even in the partial subtraction of this influence in *deep sleep* we observe a first degree of paralytic laryngismus in the snoring or stertor of this state of the cerebrum.

79. As in the case of the muscles of the neck in general, volition being withdrawn, during sleep, from the muscles which preserve the larynx open, the constrictors contract, from tonic or spinal action; and as the veins are compressed in the former case, so, in this, the larynx is partially closed, and a slight stertor is induced.

80. The most familiar instance of *spasmodic* laryngismus is observed on allowing a drop of water or a crumb of bread incautiously to drop into the rima glottidis; or in the still more formidable case of choking.

81. One gentleman experiences a spasmodic laryngismus on attempting to take a *draught* of cold water.

82. From these slighter forms of laryngismus I pass on to the severer morbid forms of this affection observed in apoplexy and epilepsy.

83. In the milder cases of these affections, no affection of the larynx, or none of any degree of severity, is perceptible. It is when the severer forms of these maladies take place, that the paralytic (or apoplectic) and the spasmodic forms of laryngismus present themselves.

84. The occurrence of paralytic or of spasmodic laryngismus denotes the *severity* of the malady. But the *re-action* of this condition of the larynx, in augmenting that severity of the disease, is of a still more formidable character.

85. The influence of laryngismus and of the obstructed respiration on the veins and integuments of the neck and face, and of the encephalon, is of the most dangerous character. On it a distended condition of the veins, purpurescence, and intumescence of the face and neck, and coma, alike depend; the proof of which is afforded by the observed effects of tracheotomy.

86. The apoplectic affections may be divided, as I have already stated, into those of the milder and into those of the severer forms: the former of these depends on trachelismus; the latter on laryngismus. By tracheotomy the apoplexia gravior is changed into the apoplexia mitior!—and even this may speedily subside. This conclusion

is one of great practical, as well as pathological, importance.

87. Analogous remarks may be made upon the spasmodic laryngismus. Epilepsy also assumes two forms: the first, that of the epilepsia mitior; the second, that of the epilepsia gravior. As long as there is only trachelismus, the case assumes the form of epilepsia mitior only. If laryngismus supervenes, the case becomes the epilepsia gravior;—convulsion and its dire effects supervene. Tracheotomy restores the patient to the condition of the epilepsia mitior!

88. This spasmodic laryngismus is the effect either of direct or of diastaltic action by or through the *medulla oblongata*. It is direct when it is the effect of emotion, and when it is excited by the condition of the circulation in the medulla oblongata induced by trachelismus. It is diastaltic, when it is the effect of dental, gastric, enteric, or uterine irritation.

89. That spasmodic laryngismus should be the essential condition of convulsion and all its dire consequences, and that tracheotomy should render such events impossible,—are surely conclusions of the deepest interest, both to the pathologist and the physician. I shall shortly adduce practical proofs of these inferences and conclusions from theory,—inferences and conclusions not deduced by any of the great *observers*.

90. To prevent convulsion, is, frequently, to save life, to preserve the intellect, to avert paralysis; in a word, to achieve a victory over the worst form of that malady which the ancients designated, κατ' ἐξοχην, the Herculean disease, the morbus sacer, &c., from its fearful immensity; this victory has been achieved by physiology, and especially by the discovery of *The Diastaltic Nervous System!*

91. Laryngismus, in its spasmodic form, is, like trachelismus, doubtless, frequently the immediate effect of the emotions or the irritations. But, in both its spasmodic and its paralytic forms, it is frequently also the effect of trachelismus itself:

92. When trachelismus has induced cerebral congestion, and when this congestion has attained a certain degree of intensity, a degree of stertor or of paralytic laryngismus supervenes, with an augmented degree of the same congestion in its turn;

93. When trachelismus has induced congestion of the medulla oblongata, laryngismus, convulsion, torticollis, bitten tongue, convulsive dashing to the floor, are the terrific consequences!

94. All these events I have observed and traced in patients with great care and attention. The chain of facts becomes, indeed, matter of *pure observation!*

95. The patient may be affected with the slightest apoplectic symptoms only. Or these may pass variously into deep apoplexy, with the most formidable stertor, with apoplectic laryngismus; or into epilepsy, with frightful convulsion, the result of spasmodic laryngismus.

On Laryngismus in relation to the Apoplexia Gravior.

96. What is *stertor?*

97. The closure of the eyelids during sleep is accomplished by a *positive* power; for, in cases of extreme debility or exhaustion, in which all the nervous centres participate, this closure is incomplete.

98. The orbicularis, during sleep, and especially in comatose affections, is, in reality, contracted by the influence of tonic or *spinal* action, unmodified by volition. This phenomenon presents the *type* of other phenomena belonging to the same class,—of the state of the muscles of the neck in the trachelismus of sleep, and of the muscles of the larynx and of the isthmus faucium in the laryngismus of sleep. It is in this manner that sleep, and especially heavy sleep, so frequently passes into apoplectic or epileptic affection!

99. Volition being withdrawn, in heavy sleep and in coma, from those muscles whose office it is to preserve the larynx freely patent, partial closure, and paralytic laryngismus, or *stertor*, is the consequence.

100. But this laryngismus brings with it impeded respiration, and with this a still more impeded venous circulation in the neck, and an augmented apoplectic condition of the cerebral nervous centre. This condition of the larynx, of the respiration, and of the cervical venous circulation, is, in reality, one of the causes, if not the principal cause, of the fatal result in apoplectic and other comatose affections. M. Andral observes—" Le stertor de la respiration est en général un signe d'un très fâcheux augure; et il est rare que les individus qui le présentent d'une manière prononcée échappent à une mort prochaine." " C'est veritablement par la gêne de la respiration que succombent les sujets frappés d'hémorrhagie cérébrale, dans le cas où l'attaque est forte et où ils meurent promptement."*

101. But this fact, and indeed all that has been said relative to the influence of apoplectic laryngismus, are confirmed by the following cases of Mr. Sampson, formerly of Salisbury, now of Chester-street, Belgrave-square, and of Mr. Cane, of Uxbridge,—cases the results of which are amongst *the greatest achievements of the Medical Art.*

102. Mr. Sampson's case is extracted from the *Transactions* of the Royal Medical and Chirurgical Society, vol. xx., p. 45. Why Mr. Cane's case, which I recently presented to that learned body, was refused a place in those *Transactions*, it would puzzle any one, without imputing the most unworthy motives, to explain. Mr. Sampson's skill saved the patient's life. Mr. Cane's prompt and energetic procedure not only saved the patient's life, but preserved him afterwards from frequent and dire attacks of *Epilepsy!*—an event certainly of no ordinary character in itself, and the fulfilment of a *prediction* of mine made many years ago.

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* Clinique Médicale, ed. 2, tom. v., p. 383.

103. I give Mr. Sampson's case without abridgment:

104. "Abraham Harris, aged thirty-one, was brought to my house on the 31st of March last, in a state of complete insensibility from intoxication, the pupils being largely dilated, the breathing stertorous, and all voluntary motion having been lost for at least four hours before I saw him. The account given by those who came with him was, that he had attended a convivial meeting in the course of the day, at which he had drunk freely both of beer and brandy; his companions admitted that he had taken more than a pint of the latter; but it has since been ascertained that his glass was repeatedly filled up, without his knowledge, with white brandy instead of water, so that it is impossible to calculate what quantity of spirit he had actually taken.

105. "I immediately used the stomach-pump, and drew off between three and four pints of fluid, a great part of which appeared to consist of brandy; after which, tepid water with ipecacuanha diffused in it was several times injected into the stomach, and after a while withdrawn again, with a view to excite vomiting, and thus rouse the energies of the brain. Finding, however, that these means failed, a strong solution of salt in water, and afterwards the sulphate of zinc, were repeatedly tried, without any better result; he became, if possible, more comatose, the countenance turgid, the breathing more and more difficult; the pulse grew fainter, and was at last scarcely perceptible; at the same time, the whole surface of the body was cold and clammy, and he was insensible to every kind of stimulus. As he was some miles from his home, I had him removed to the Infirmary, and called a consultation of the other medical attendants, who arrived in the course of half an hour; but as, in addition to the above symptoms, he had lost the power of swallowing, and every appearance indicated the rapid approach of death, nothing was ordered for him but a turpentine injection, there being no ground to justify a reasonable hope of recovery.

106. "At this period, it occurred to me, whilst standing by his bed side, that the comatose state in which he lay might not arise from apoplexy, but from torpor of the brain, in consequence of that organ being supplied with blood not duly oxygenated; for the shrill tone and extreme difficulty of respiration showed the existence of collapse of the glottis, and imperfect transmission of air into the lungs, which might be accounted for by a paralyzed state of the eighth pair of nerves and recurrent branches. With this view of the case, I again appealed to my colleagues, and strongly urged that a trial should be given to the operation of tracheotomy; for I could not but hope, that, if mechanical respiration were carried on for a time, the blood might regain its proper stimulant properties, and restore the energies of the brain and nervous system. Upon their consenting to give him this chance, the operation was performed, without loss of time, by Mr. Andrews, under whose care, as surgeon for the week, the patient was now placed.

107. "The trachea was no sooner opened than the distention of the veins about the head and neck subsided, the violent efforts of the extra-respiratory muscles ceased, and in about half an hour regular and easy respiration through the wound was completely established; at the same time, the pupils became slightly sensible to the stimulus of light, and the pulse returned to the wrist. The immediate result of the operation being thus far satisfactory, nothing remained to be done but to give directions for the frequent removal of the mucus which appeared at the wound, and to keep the surfaces of the incision asunder until the integuments and muscular layers had become agglutinated to each other: this latter object was effected by means of a piece of strong spring-wire, with a bow at each end of it, which, being introduced in a bent state, was allowed to expand, and the opening in the trachea was thus prevented from being covered by the muscles, even during the efforts of deglutition.

108. "He continued perfectly quiet during the night, but had no return of consciousness until the following morning, when he gave us to understand, by signs, that he suffered from headache and soreness at the pit of the stomach; there was a tendency to sickness, and the tongue was coated with a peculiar whiteness, as if rubbed over with chalk. Moderate purgatives, followed by mild alkaline medicines, soon removed these symptoms, and a few leeches were applied to the throat for the purpose of checking too high a degree of inflammation; after which, no further treatment was required; but the wound being healed in about three weeks, he was discharged cured, and has continued up to this time in the enjoyment of perfect health."

109. To Mr. Cane's case I shall have to refer hereafter, in its relation to the treatment of epilepsy: for, as I have already stated, it possesses a double and an extraordinary claim to our attention and admiration. I give it in Mr. Cane's own words, as addressed to myself:

"Uxbridge, May 17, 1851.

110. "My dear Sir,—I was called suddenly to attend A. B. aged twenty-four, on Feb. 1, 1851. I was told that he had been taken out of a canal-boat the day before, apparently in a dying-state. On entering the house, I found the patient in convulsions, with a most turgid face, with extravasated blood on the conjunctivæ, which were of a perfectly livid colour, with cold extremities, and a pulse imperceptible at the wrist, his heart acting most feebly. Respiration was impeded to such an extent, that I concluded that the whole mass of his blood was becoming rapidly of a venous character, and quickly losing the properties necessary to support life. The platysma myoides and the sterno-mastoidei were in powerful action, but most so on the right side, throwing the chin, which was kept in constant motion by spasm, nearly to the shoulder on the left. Inspiration was only accomplished by seldom and short

catches. The veins of the head and neck were everywhere visible, and greatly distended. I was told by the bystanders that he had been in the same state for nineteen hours, with some intermissions, but without any return of sensibility. I looked upon this as a case commencing with spasm of the larynx and muscles of the neck in general—the insensibility being produced in the first instance by obstruction to the return of blood from the brain by this state of spasm, and kept up and brought to a state of coma by spasm of the arytænoid muscles preventing free access of air to the lungs, or even enough to arterialize the blood sufficiently to support life. With respect to the exciting cause of the spasm, I could learn nothing at the time; but if acidity in the stomach, or dyspepsia, will (as it frequently does) produce cramp in the legs, how readily can we understand how the same thing may happen with the muscles of the larynx, particularly when we remember the origin and distribution of the gastric and recurrent laryngeal branches of the pneumogastric nerves.

111. " Feeling convinced that the patient must shortly expire, and that the root of the evil was in the closure of the larynx, I at once proceeded to open the trachea—a matter of no small difficulty on account of the twisted state of the neck, the engorged state of the vessels, and the constant action of the muscles. However, I felt it must be done, and I directly made an incision from the upper border of the sternum, extending in the median line upwards for about two inches. After separating the edge of the sterno-hyoidei muscles, a large and much-distended vein protruded forwards (the middle thyroid,) which, in its engorged state, was so troublesome, that I at once put two fine ligatures round it at each extremity of the wound, and removed the part between them. After this, the rings of the trachea were soon reached and divided, and the cut ends of the rings were then seized with a tenaculum, and small pieces removed from each.

112. " The immediate effect of the entrance of the air into the chest was to relieve all spasm. I was enabled to place the man's head straight, and in a remarkably short space of time the turgescence of the head was relieved. The face assumed a mottled appearance at first, then became red, and, in the course of ten minutes, pale; but, during these changes, the pulse had again become perceptible at the wrist, and means were used to induce circulation in the legs and feet.

113. " I proceeded to convert the stilet of a female catheter into hooks, which were placed in the wound, and fastened behind the neck so as to keep the trachea open. This I was obliged to do, from being thrown in the way of the case with only my pocket instruments at hand.

114. " By the time I had done this, the patient was sufficiently sensible to try to speak, and I was able to tell him what had been done, and to induce him to be quiet. In an hour I left him, and shortly after returned with a canula, which I placed in the trachea, drawing the wound with the integuments together with strips of plaster, until it exactly fitted the silver tube. The two ligatures were brought out at the upper and lower extremities of the incision.

115. " On my next visit, on the following day, the pulse was about 90, and he was, in every respect, doing well; and on my placing my finger on the mouth of the canula, he was able to tell me that he had been the subject of epilepsy for seven or eight years, and that lately the attacks had been more frequent and more violent, and that he did not think he had passed two days together, during the last two years, without an attack.

116. " He has done well from the first day, the ligatures coming away on the fourth and fifth days and the wound uniting by the first intention, and closing round the canula.

117. " He remained under my care until the 15th of the month, without any return of his fits. He then went with his boat into Staffordshire, and has not yet returned; but I hear that he has remained quite well up to this time."

" To Dr. Marshall Hall."

118. No one can read the accounts given by Mr. Sampson and by Mr. Cane, of the immediate effect of the operation of tracheotomy on the circulation in the neck, without feelings of the deepest interest.

119. Mr. Sampson observes—" The trachea was no sooner opened, than the distention of the veins about the head and neck subsided."

120. Mr. Cane states that—" the veins of the head and neck were everywhere visible and greatly distended;" that—" the immediate effect of the entrance of air into the chest was to relieve all spasm;" and that—" the face assumed a mottled appearance at first, then became red, and, in the course of ten minutes, pale."

121. I leave these facts to my readers' attentive consideration. I write for the candid lover of our profession and of truth.

On Laryngismus in relation to the Epilepsia Gravior.

122. *Observation* teaches us that laryngismus, more or less severe, intervenes as the essential cause of all that is *convulsive* and most formidable in epilepsy.

123. In the year 1841, before the relation of laryngismus to epilepsy, or rather to epileptic *convulsion*, was known to me, I wrote the following paragraph :—

124. " The other day, the mother of a most intelligent lady, whose husband is liable to epilepsy, was suddenly choked: the phenomena were precisely those which precede or commence the epileptic attack ! This remark was made by the lady in question, who was but too well acquainted with the terrible appearances in that morbid affection."*

125. To this paragraph, I must add the follow-

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* See Derangements of the Nervous System, p. 188.

ing most interesting case from the able work of Dr. Stokes:—

126. " A gentleman, aged twenty, *who had previously enjoyed the best health*, while conversing in the act of eating a piece of cheese after a hearty dinner, suddenly fell from his chair in a state of insensibility. On the supposition that a foreign body had become fixed in the œsophagus, a probang was speedily passed, and after about ten minutes he partially recovered. Soon, however, the attack recurred with great violence, the face was strongly congested, and the breathing spasmodic and stertorous. He was then freely bled; but no impovement followed. Stimulating injections and a second bleeding were employed, but still without relief, the situation of the patient becoming every moment more critical. A loud rattling in the throat now supervened. The patient tossed himself on the bed, and threw his arms about so as to extend the chest as much as possible. All the muscles of inspiration were in the most violent action; and the surface of the body became pale and cold. Hours had now elapsed: the failure of all means employed led to the suspicion that the case might be one of asphyxia from tracheal obstruction; and a stethoscopic examination having been made, the following circumstances were observed:—

127. "The chest sounded everywhere clear, but the vesicular murmur could scarcely be perceived in any portion of the lungs, the feebleness being equal and universal, notwithstanding that the patient made the most violent efforts of inspiration. A loud sonorous-mucous rattle, every moment increasing, was heard in the trachea, while the slight dilatation of the chest, compared with the respiratory efforts, clearly pointed out some obstruction in the windpipe.

128. " The question then arose, what was the nature of this obstruction? Had a morsel of food passed into the trachea, or were the symptoms produced by a spasm of the glottis, consequent on cerebral irritation? The failure of treatment calculated to relieve the brain, and the evident secretion into the trachea, as shown by the loud rattle at the top of the sternum, were strongly in favour of the first opinion; and it was obvious that, as the patient was dying of laryngeal or tracheal obstruction, something should be done to give immediate relief. The operation of tracheotomy was then performed, and a crucial incision made through the tube; and on the angular portions between the incisions being removed, a mass of pultaceous matter was forcibly ejected through the opening, with complete and instantaneous relief to the symptoms. Respiration became easy, the expansion of the lung full and audible, the patient breathed through the glottis, and recovered without a bad symptom.

129. " In about four weeks, however, he was attacked with symptoms of cerebral irritation, and had *a fit resembling epilepsy;* during the next three months, these attacks recurred several times, becoming gradually less severe. They then altogether subsided; and for the last four years he has had no return of the disease. The treatment consisted in small bleedings, cold to the head, and the use of turpentine."[*]

130. Laryngismus, in its simplest form, proved the exciting cause of epilepsy, and of that condition of the spinal nervous centre which led to future attacks of epilepsy!

131. We have all witnessed the condition of the face and of the neck in *pertussis;* and we have all met with cases of *Convulsion* induced by this strange and violent *laryngeal* affection. Would not tracheotomy supersede both the first and the second phases of this malady?

132. The following note will be read with the deepest interest:—

"7 Pembridge Villas, Westbourne Grove, 1st March, 1850.

" Dear Sir,—I venture to trouble you with some particulars of the following case, thinking it tends to confirm some important views which you have lately made known to the profession on the pathology of apoplexy and epilepsy.

" The subject, a son of mine, a healthy boy, four years old, has been suffering for the last five weeks with hooping cough. The symptoms during the first and second stages, were mild, as compared with those of three others attacked on the same day; but, during the last fortnight, when all inflammatory symptoms have passed off, and the disease has become purely nervous or spasmodic, he has had ten or a dozen convulsive attacks, of a rather peculiar kind, which appeared in part to take the place of the ordinary paroxysms. He is aware when the cough is coming on, dreads it much, and gives intimation to those about him; but, on these occasions, instead of coughing, he suddenly loses all power, and *falls*, if not supported; every muscle becomes rigid, the countenance and neck suffused, the eyes and lids convulsed; he foams at the mouth; the respiration is entirely suspended at the larynx for several moments; evacuations pass involuntarily; and there is distinct torticollis. The paroxysm lasts from one to two or three minutes, and is succeeded by some cough and hooping, but much less than on the ordinary occasions. He afterwards sleeps heavily for half an hour or an hour, and awakes tolerably well. There has been a slight ecchymosis of the eyelids, and considerable swelling, so much so as to lead, with some œdema of the feet, to a suspicion of renal disease. The latter evidently arises from debility, as he has lost much flesh and strength during the last ten days.

" I look upon this as a case of epilepsy, caused by the perfect closure of the glottis, and as giving, in a very marked manner, support to your original view of the seat of the disease.

" I am, dear Sir, very faithfully yours,

"Dr. Marshall Hall." " W. H. Allchin, M.B.

This case is a beautiful illustration of the following remarkable observations on pertussis, of Heberden: ' Puer advenientem præsentit, et ad matrem, vel famulam, accurrit; at adulti, accessione victi, momento temporis, velut attoniti *con-*

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[*] A Treatise on the Diagnosis and Treatment of Diseases of the Chest, Part I., by W. Stokes, M. D.; 1837; p. 288.

cidunt; illico vero resipiscunt; atque hoc est proprium hujus affectus signum in adultis. Qui enim præter solitum tussiunt, et nuper versati fuerunt inter aliquos tusse convulsiva laborantes, siquidem morbo concidant, nullum relinquunt locum dubitandi de natura ægrotationis. Ægri de quibis sermo est, majorem in modum queruntur inflationes."*

133. Such too is precisely the effect of strangulation, when it does not prove fatal, as in a case detailed by the late Mr. Hey, of Leeds:†

134. "May 18th, 1782, in the evening, Mr. ——, being greatly distressed, rashly hanged himself. He was discovered and cut down. A surgeon was sent for, and, finding him lying insensible and frothing at the mouth, took about a pound of blood from the arm. Soon after, Mr. —— was seized with convulsions."

135. In this point of view nothing can be more interesting than the following sketch of a case by Mr. Martin Coates, of Salisbury:—

136. "My dear Sir,—I have had a very interesting case of puerperal laryngismus. I was called to a rather corpulent, very indolent woman, who had had several natural labours. I arrived just in time to support the perinæum during the passage of the head of the fœtus. At this moment she complained of oppression of breathing, accompanied by a short cough, and, before I could tie and divide the funis, the dyspnœa was urgent, and she was soon in a state resembling that of a child who has sucked boiling water from a tea-kettle; and, in a very short space of time, her lips and face become blue, her eyeballs protruded and fixed, and she was becoming unconscious. I felt her pulse, and found it full and bounding. I desired the persons in the room to raise her to a sitting posture, and opened a vein in both arms, having previously relieved the throat from any pressure from her dress. When I had allowed twenty ounces of blood to flow she became sensible, and her breathing free, and in a quarter of an hour she was, and continued, quite well.

137. "The case so much resembled those above alluded to—that is, of closure of the glottis from injury—that, had she not been relieved at the moment, I should have taken my bistoury and opened the trachea.

138. "In this case there were—1, Spasm, and almost complete closure of the glottis; 2, A state approaching to apoplexy, or convulsion.

"Believe me to remain, my dear Sir,
"Yours very truly,
"Dr. Marshall Hall." "W. MARTIN COATES.

139. Can any one doubt that, but for the prompt treatment of Mr. Martin Coates, this slight laryngismus would have become more and more severe, and that the patient was on the very eve of convulsion?

140. Another most interesting fact of this kind is that afforded by the following graphic sketch of an epileptic attack by Dr. Henwood:

* * * * *

141. "The attack occurred about an hour after his dinner. We were quietly seated, talking of something I had just read in the *Times*, when I observed him *turn his head* very oddly towards his left shoulder, which is *always* observed in the commencement of an attack. On this occasion I was enabled to watch every symptom, the attack having occurred whilst he was reclining on a large easy chair. It evidently commenced with complete *laryngismus*, with evident *efforts of expiration*. I immediately applied the candle to his mouth and nose, and I am *positive* that he was unable to expire for *one or two minutes;* and, during the spasmodic state of the muscles, his *neck* measured, as well as I could ascertain from a very loose shirt-collar becoming perfectly tight, rather more than an inch and a half more in circumference than before.

142. "I should like, were it possible, to see the effects of your valuable suggestion—viz., *Tracheotomy;* for my decided impression is, that it would obviate the evil. On the day previous to the attack, I observed that the pitch or key-note of his voice had fallen more than a note."

143. In effect, the state of convulsion is attended by violent and ineffectual respiratory, and especially expiratory, efforts; and every kind of effort implies laryngismus. The acts of vomiting and of defæcation imply closure of the larynx. Many years ago, I investigated the nature of the act of vomiting, and found that it was rendered *impossible* by *tracheotomy!* The patient on whom Mr. Anderson performed this operation (see § 147—,) when suffering from an attack of epilepsy,—now happily limited to the epilepsia *mitior!*—on one occasion blew out a candle brought near the tracheal orifice. Mr. Cane's patient inserts a cork into the tracheal tube when he wishes to speak loud, or lift a heavy object. One day he will, I fear, in this manner bring on a fit of epileptic convulsion!

144. But *the Proof* of the justice of these views is afforded by the successful issue of two cases of tracheotomy, instituted as a preventive of epileptic convulsion. I must here adduce two notes from Mr. Cane, written subsequently to that given, §110.

"Uxbridge, April 1st, 1851.

145. "My dear Sir,—I have inquired after my patient, and find that he has been laid up with variola, but has not, up to this time, had any return of epilepsy. I wish now to close the canula, and observe whether there be any disposition to a return of his malady. I will, when he next comes this way, detain him for a week or two, and watch him, and give you the opportunity of seeing him.

"Believe me, my dear Sir, yours faithfully,
"To Dr. Marshall Hall." "W. H. CANE.

"Uxbridge, October 15th, 1851.

146. "My dear Sir,—I have seen our patient, the boatman, and he tells me that he has continued up to this time without any return of epilepsy, even in the slightest form.

"I am, my dear Sir, yours faithfully,
"To Dr. Marshall Hall." "W. H. CANE.

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* Com. ed. 1807, p. 376.

† Observations in Surgery, ed. 3, p. 481.

147. To these notes I add the following observations made by me at the Harveian Society, on the evening of Thursday, the 20th of November, 1851, in reference to a case of Mr. Anderson, of York-place, Portman-square, in which he had performed the operation of tracheotomy, with the view of preventing epileptic convulsion:—

148. "It is impossible not to feel deeply interested in Mr. Anderson's admirable case; and I beg to make a few remarks upon it.

149. "The poor woman, who is thirty-six years of age, has been fearfully epileptic during twenty-four years, and her father had been afflicted with the same dire malady. Her seizures were of the most terrible character; she would frequently present herself at the dispensary, cut and bruised, and even burnt, in her convulsive falls and convulsions, and her face still bears the marks of these injuries. Her case is one, therefore, calculated to test the value of any remedy.

150. "The operation of tracheotomy was performed three months ago, and I think the opening into the trachea too small to be perfectly satisfactory: her inspiration is heard through the tube, and her speech is audible, and she can 'snuff up,' drawing in the alæ nasi, without closing its orifice. None of these events occur when the orifice into the trachea is of sufficient dimensions. The tube is also partly occupied by an inner tube, which, though it admits of easy removal for the purpose of being cleaned, is apt to become clogged with mucus, through neglect. Nevertheless, this poor woman has had *no* formidable fit since the tube was inserted. She has never bitten her tongue, which she used to do; once only has she fallen, and there was then no convulsion, and she experienced no injury; her fall was not convulsive. To use her own phrase, and those of the person who accompanied her to the Society, she does not now turn 'black,' her fits are not so 'strong,' and she is recovering from a state of 'apathy,' in which she was before.' In a word, she has none of the formidable convulsions which were previously inducing havoc on her brain and mental faculties!"

151. Mr. Cane saw his patient on or about March 1, the tracheal tube having to be constantly worn during the interval of thirteen months since the operation. Not a symptom of his malady has recurred. On the 10th, Dr. J. W. Ogle was so kind as to visit Mr. Anderson's patient, who had worn the tube during half that period, and to take the following note:

152. "Ann Ross, aged thirty-six, a washer-woman, has been subject to 'fits' for twenty-four years. The only cause she can assign for them is the fact of her father's being also liable to them. These fits, the patient says, have followed no rule in their accession; at one time occurring many times in a week; at another time, having an interval of three weeks; but never any longer interval. Neither has she been able to refer them to any irregularity of diet. They were generally, but not invariably, preceded by 'shakings and jumpings of the limbs,' and 'confusion of ideas,' to use her own expressions. Oftentimes the startings of the limbs have come on, and no fit has supervened. Beyond this account, but little history concerning the character of the attacks can be elicited from the patient.

153. "Until eight years ago, the patient resided with friends, having no home; but they having got tired of her, she has been in lodgings since that period, subject in the same way to the fits. The present attendant's account of them is as follows:—The fits have been wont to be very violent, and attended by strong convulsions. She has generally 'gone very dark,' and 'at times almost black' in the face, and been often dashed forcibly to the ground, cutting her face and biting her tongue. She has generally foamed at the mouth during the fits, which have lasted, for the most part, for a quarter of an hour; and when the fits have been less frequent, the startings and jumpings of the limbs have been most numerous. Her general health has been tolerably good, and she has maintained herself by her needle, and by the assistance of friends. For the last three years, however, she has been getting thinner.

154. "On the 26th of July, 1851, the operation of tracheotomy was resorted to; and since that time the fits have been much less frequent and less strong in character. The patient said she had had four or five fits, but the attendant, who is only with her occasionally, being within call, had not seen a single one until December 23rd. These four or five seem, however, from the patient's account, to have been much milder than previous ones. On the forementioned date, December 23rd, the attendant saw her in a fit, which was 'very bad and strong,' '*but not nearly so much so, or so lengthy, as formerly*;' and 'without blackness of the face,' 'foaming in the mouth,' or general convulsion as distinguished from partial spasms; and she thinks the benefit '*is owing to the breath coming out of the tube.*' During the last week of December, and the first two weeks of January, 1852, the patient had three fits, but all of them were comparatively mild. One of them, stronger than the others, came on during the time (about ten P.M.) that they were searching for the tube, which had fallen out of the throat. She has since lost the tube out of the throat again, but nothing then took place. When seen, January, 1852, she came down stairs to open the door herself, and the re-ascent gave her much difficulty of breathing, and palpitation of the heart. Her countenance was very dusky, and had almost the appearance of one who has been treated with nitrate of silver. This aspect rather subsided, after a short time, but she always has somewhat of a dingy-coloured skin. She has a slight squint, and on her face there are various marks of former falls and injuries; the left eyelid was bruised, and the conjunctiva ecchymosed from a recent fall. She spoke in a very low whisper, and on inspiration, a rushing noise was made by the air entering the trachea through the artificial aperture. Moreover, when she spoke with effort, not closing the canula with her finger, there were

slight movements of the alæ nasi. There was no irritation about the external wound, and when she feels it necessary, she takes out the inner tube and cleans it before replacement. On examination, her lungs and heart appeared to be healthy, her pulse was rather frequent, but her general health was tolerably good; tongue clean, and appetite good. She takes walks occasionally, but a long one generally makes her feet swell, and causes difficulty of breathing.

155. " Seen about the 10th of February. The patient had had no return of any fits, and was going on well.

156. " Seen March 10th. She had had one fit on the 26th of February early in the morning, when, owing to previous warnings of 'jumpings,' &c., she was in bed. She has been tolerably well ever since. The fit appears to have been very mild; no foaming at the mouth occurring, although she very slightly bit her tongue."

157. The perfect remedy afforded by tracheotomy in the former case *might*, by possibility, be a "coincidence." (See § 183.) But the benefit—the escape from *convulsion*—in the second, could not, even by possibility, be so. For attacks of various degrees of severity have occurred, and would, but for the operation, have indubitably led to the *severest*. The proof of the efficacy of the remedial means is, therefore, greater as afforded by the second case even than by the first. The nearer the approach to general convulsion, without its actual occurrence, the stronger that proof. I think the bitten tongue never occurred *without convulsion*, the livid countenance, and the congested cerebrum, in this world before! The attacks are cut short—short of *convulsion*—and the relief appeared to the witness of former and of the present attacks to arise from the escape of air through the tube!

158. Even in an hereditary and inveterate case, this good result has been obtained—the seizure, however otherwise severe, has been prevented from passing into *convulsion*. Again, then, I may remind my reader, that it is *not* epilepsy, but convulsion, which is prevented by tracheotomy; and the remark may be extended to every kind of convulsion—epileptic, puerperal, and infantile. And it is precisely convulsion which induces havoc in the nervous centres, the cerebrum or the medulla oblongata, with impaired intellect or crippled limbs.

159. I must again add, that a larger tube and a freer exit for the expired air would have been more effectual still.

160. "I regard the success in this case as *complete; Convulsion*, with its train of dire effects, has been prevented!

161. " Epilepsy must be divided into two kinds; the epilepsia mitior, or the '*petit mal*' of the French; and the epilepsia gravior, or the '*grand mal*' or '*haut mal*.' Now, laryngismus is the event which marks and separates these two. The former consists of attacks of vertigo, confusion, unconsciousness, in which the patient may *fall*, and there may be partial spasmodic actions: the seizure is transient. But the laryngeal dyspnœa, the purple lividity of the face, the convulsion, the convulsive fall, the bitten tongue, the foam, the coma, and the delirium, belong to the latter. The milder form occurs without laryngismus. Tracheotomy can therefore have no application in such a case. The graver form, on the contrary, essentially depends upon laryngismus, and is incompatible with a just and ample opening into the trachea.

162. " The same remark applies to every form of real, general, and complete convulsion—epileptic, puerperal, infantile. Being dependent on laryngismus, such convulsion *cannot* occur if tracheotomy be efficiently performed.

163. " We have to consider whether the *effects* of such convulsion—and they are surely dire enough—justify the heroic remedy.

164. " There is also another question. In what degree can the operation itself be simplified and improved?

165. " I am of opinion that a much lighter and more commodious *tube* may be used; and I think that where a protracted opening is required, its *edges* may be perfectly *healed*, leaving a permanent opening, which may be closed by removing those edges when this is thought to be desirable. The orifice ought, too, to be protected from the influence of the cold atmosphere by a cage of wire, covered by cotton net.

166. " I should add, that I regard Mr. Anderson's modification of my trachéotome as a very great improvement."

167. All, then, that may occur without laryngismus may be regarded as the 'petit mal;' all that occurs beyond laryngismus, as the 'haut mal.' Laryngismus is the event which divides or unites the two.

168. Sometimes no laryngismus occurs: it is the 'petit mal;' tracheotomy can avail nothing. Sometimes laryngismus supervenes: the case then passes into the 'haut mal:' this tracheotomy will supersede, the 'petit mal' remaining. Sometimes laryngismus is the very first symptom: it is then the 'haut mal' at once: tracheotomy is the effectual remedy.

169. There is no reason why the 'petit mal' should be prevented by tracheotomy. It is the 'haut mal' which is prevented by this operation freely performed.

ON TRACHEOTOMY.

170. Every kind of slight vertigo, oblivium, delirium, and morbid sensations, and even *falling*, may occur, without the suspicion of epilepsy; or, if there be epilepsy, they may occur with various spasmodic affections, as the 'petit mal.' They therefore may occur in spite of tracheotomy.

171. But the deep purple countenance, the bitten tongue, the foam, the severe and general convulsion, the deep coma, the subsequent mania, the danger to life, mind, or limb, can only occur as effects of laryngismus, and are prevented by tracheotomy.

172. By means of this measure, we therefore

arrest the course of this terrific and dire disease, at the point at which it becomes a source of havoc and of danger!

173. But it must be remembered that *more* than this, this measure cannot effect.

174. The epilepsy may be inveterate or hereditary; there may be defective development of the nervous centres; there may be *frequent* slight attacks, and only *occasional* severe attacks; havoc may already have been inflicted on the intellect, or on the sentient or motor powers; organic disease may have been a cause, or a consequence: the intelligent physician will readily comprehend what may and what may not be expected in such cases.

175. But in cases induced by emotion, or by one or more of the irritations; not yet inveterate; not yet involving diseased structure; and consisting chiefly of convulsive attacks, inducing lividity of the countenance, involving the bitten tongue, and the foam, and succeeded by stupor or delirium;—as the case depends on laryngismus, so it may be superseded by tracheotomy and the tracheal tube.

176. There *is* one case in which the propriety of the institution of tracheotomy can admit of no doubt. It is such a case as that of Mr. Cane, when life is at stake. The additional motive afforded by the hope that the measure may lead to the subsequent prevention of epileptic convulsion, is also illustrated by that case.

177. But, hereafter, perhaps the hope of saving mind or limb, when life itself is not in jeopardy, may be deemed a sufficient motive for tracheotomy. I think I may safely leave the question to those who have the opportunity of witnessing the various forms of convulsion—epileptic, puerperal, &c.—with its dire effects, to determine. It will come to be a question of *degree* and of *time*—it will come to be agitated when we behold our patient affected with coma and stertor, or with convulsion, and know that tracheotomy will remove the former, and prevent the recurrence of the latter, with their effects. Apoplexy and epilepsy occur in every form, in every degree, both in themselves and in their effects. They occur and recur in rapid succession, and so as to threaten life, or impair the faculties; they occur in a form and degree scarcely perceptible, and in the direst form; and they occur in every intermediate form and degree. What severity of malady will call for and justify the remedy?

178. As I have stated, I believe few will hesitate to perform the operation of tracheotomy, as the present remedy, when there is, from apopletic laryngismus, imminent danger to life. But the question recurs—Are we justified in performing this operation in cases of epileptic and other convulsion, as a *preventive* of future evil? Are the somewhat remoter danger to mind, and limb, and life, and the hope that, whilst the faculties are spared, the patient may be rescued from the susceptibility to the attacks, the *dignus vendice nodus*, any sufficient motive for adopting this measure in its more continuous mode of a tube worn in the trachea? After having witnessed the dire circumstances and effects of these frightful maladies more than any one—of epilepsy of inorganic origin especially—I unhesitatingly say—Yes. I regard the melancholy condition of the patient as justifying the heroic remedy.

179. The case, I repeat, may be violent and frightful *in any degree*. In what precise case is tracheotomy justifiable? This is a matter of pure *moral* calculation and choice, in regard to the terrors of the malady on one hand, and of the remedy on the other. Epilepsy may occur in the slightest form of mere transient oblivium, and it may occur in the gravest form of sudden and violent convulsion, dashing the patient to the ground, into the fire, or into the water, and be followed by coma or apoplexy, delirium or mania, paralysis, amentia.

180. The former of these attacks, or the *epilepsia mitior*, comprises all that is short of laryngismus—affections of the senses, as muscæ, tinnitus, the odour of musk, aura, vertigo, oblivium, confusion; loss of consciousness, nutatio, falling; various spasmodic affections of the face, the eyes, the neck, the extremities.

181. Then comes laryngismus, laryngeal dyspnœa, perhaps perfect closure of the larynx, with violent efforts of expiration. This, with all the other links of the dreadful chain, constitute the *epilepsia gravior*.

182. All that is on *this* side of the laryngismus must be unaffected by the operation of tracheotomy; all that is on *that* side of this laryngismus will, I trust and believe, be prevented by its efficient institution. By tracheotomy, the *epilepsia gravior* or the '*grand mal*,' is converted into the *epilepsia mitior*, or the '*petit mal*.' If this, my hope, be realized, I shall deem the event a great victory achieved by physiology or theory over mere observation, and especially by the discovery of *the Diastaltic Nervous System*, of which it is an application. And I here adduce the admirable words of one whom I have long regarded as the greatest physician of any age, or any nation, pleading the act detailed § 102, as my apology:

183. "Encore qu'il ne soit pas très agréable de porter un tube dans la trachée-artère, pour se préserver de l'épilepsie, cette maladie est néanmoins si affreuse, que vous aurez rendu un bien grand service à l'humanité, si le temps confirme vos vues, si l'ésperence s'ajoute à l'heureuse expérience que vous avez faite une fois. Aussi ne saurais-je trop vous engager, mon cher ami, à expérimenter de nouveau, à recueillir des faits nombreux, avec des détails suffisans, avant d'annoncer votre découverte comme parfaitement positive au public. S'il y a plus qu'une coincidence (et je le crois) dans le fait que vous avez fait connaître, vous pouvez attendre sans trop d'impatience, car le monde savant est averti, et vous avez pris date. Courage, donc, mon cher ami; continuez à interroger l'expérience avec la sagacité que vous apportez en toute chose; et si vous êtes dans le vrai, vous ne serez pas plus heureux que moi de votre invention—grande et

magnifique invention !—qu'on pourrait placer à côté du problème résolu par M. Leverrier."

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184. I now proceed to make a few remarks on the best mode of performing the operation of tracheotomy. This operation has not been hitherto an easy one. I once saw a little patient die on the operation-table, and I shall never forget the painful scene. My earnest wish is, now that I see a most important application of this operation as a remedy, beyond all former idea, to render it as safe and as easy as possible, so that the country practitioner of least experience need not be deterred from undertaking it.

185. I first propose to make a free incision through the integuments; then to separate the other tissues by means of a blunt-pointed stilet, or the forceps, mechanically, without division, and of course without hæmorrhagy, and thus to denude the trachea. I have, then, to suggest the use of an instrument in the form of a trochar, or small trephine, supplied with a curved hook, which may be drawn upwards within it, and a circular cutting edge. As this last is made to revolve, the hook is drawn within it, and a circular piece of the trachea is removed.

186. Into the orifice thus made into the trachea, I propose to introduce a little instrument made of silver wire, much lighter than any tube, and admitting of being diminished in size for introduction and removal, and reintroduction, and so contrived as to be secure in the tracheal orifice, when introduced and allowed to expand.

187. I further propose that a cage of wire gauze, covered by cotton net, be fixed over the orifice, to prevent the ingress of cold dry air, especially when the easterly wind prevails.

188. It has occurred to me, too, that, in cases in which a protracted tracheal opening is required, the edges may be *healed* by means of the application of sulphate of copper, the edges of the integument being removed by the lancet or the scalpel, and brought together, when it is thought well to obliterate the orifice.

189. I repeat, in conclusion, what I have on several occasions stated, that, if tracheotomy were performed, and a tube worn in the trachea, the epileptic, the puerperal, or even the infantile *Convulsion* would be prevented, with its dire effects.

190. Experience is now added to theory, to confirm me in this *hope*—for it is but a just degree of caution *still* to regard the question as one of hope. (See § 183.)

191. I now generalize the idea, and apply the reasoning to paroxysmal apoplexy, as well as to convulsion; and I hope and trust that tracheotomy will be found a preventive or a remedy of the apoplexia gravior, as well as of the epilepsia gravior.

192. It is singular to observe how laryngismus becomes, in both apoplexy and epilepsy, the intermediate link between the milder and severer disease—the effect of the former, and the cause of the latter. The due appreciation of these facts will lead to an important principle of *treatment* in one of those affections, and of *prevention* in the other. The latter of these must be viewed in the light of a remarkable prediction fulfilled by the event.

193. The conclusions to which I have arrived, are—

194. 1. That, in cases of the apoplexia gravior without organic disease, the patient ought not to be permitted to die, without the institution of tracheotomy.

195. 2. That, in cases of the epilepsia gravior, laryngismus with convulsion, and danger to life, mind, or limb, ought not to be permitted to recur, without giving the patient the hope involved in the same operation.

196. 3. By tracheotomy, I repeat, the '*haut mal*' is converted into the '*petit mal*,' beyond which, the dire affection, for want of obstruction to the breathing, with expiratory efforts, cannot proceed; and even this '*petit mal*' may, for want of renewed havoc made on the nervous structures, with induced susceptibility to returns, subside and disappear.

197. It has been proposed as a question whether laryngotomy or tracheotomy be the preferable operation as a preventive of convulsion. My choice of the latter is founded on the following considerations:

198. First; the textures involved in laryngotomy are more complicated than those involved in tracheotomy. In the latter case, the incision being made through the integuments, and the other tissues, the *veins* included, being *pushed aside*, nothing remains but the simple cartilaginous rings and mucous membrane of the trachea requiring division:

199. Secondly; the movements of the trachea are far less, and less complicated, than those of the larynx, in various acts, as of deglutition, &c.

200. Thirdly; if inflammatory action spread from the orifice, it may, in the case of laryngotomy, implicate the important tissues of the larynx;

201, The orifice in tracheotomy is also made at a more convenient spot, in regard to dress, than in laryngotomy.

202. It must be remembered that, in the case in question, many months, and even years, may elapse during which the tube is worn without intermission.

Starch in Skin Diseases.—M. Cazenave is now substituting powdered starch to poultices, especially in pruriginous affections; either simply dusted over the part, or applied after the latter has been well cleansed by an alkaline solution and thoroughly dried. The starch may be used simply, or mixed with oxide of zinc, camphor, &c. M. Cazenave treats acute eczema, acne rosacea, impetigo, and herpes, by dusting the affected regions, night and morning, with the following powder:—White oxide of zinc, two drachms; powdered starch, four ounces. Very good results have been obtained in prurigo of the genital organs, the groin, or the axilla, with the following powder:—White oxide of zinc, two drachms; camphor, half a drachm; powdered starch, four ounces.—*Annales des Maladies de la Peau.*

Lectures
ON
SOME OF THE MORE IMPORTANT POINTS IN SURGERY.

By G. J. GUTHRIE, Esq., F.R.S.

Late President of the Royal College of Surgeons of England, Consulting-Surgeon to the Westminster Hospital, Surgeon to the Royal Westminster Ophthalmic Hospital, etc.

LECTURE IV.

40. When the wound of an extremity is of so serious a nature as to preclude all hope of saving it by scientific treatment, that limb should be amputated as soon as possible.

41. An amputation of the upper extremity may almost always be done from the shoulder-joint downwards, without much risk to life, and when necessary, the sooner it is done the better.

42. An amputation of any part of the lower extremity below the knee downwards may be done forthwith, with nearly an equal chance of freedom from any immediate danger, as of the upper extremity at or near the shoulder-joint.

43. It is otherwise with amputations above the middle of the thigh, and up to the hip-joint. They are always attended by considerable danger.

44. There can be no doubt that if the knife of the surgeon could in all cases follow the ball of the enemy, or the wheel of a railway carriage, and make a clean good stump instead of leaving a contused and ragged wound, it would be greatly to the advantage of the sufferer; but as this cannot be, and an approach to it even can rarely take place, the question naturally recurs,—At what distance of time after the receipt of the injury or accident can the operation be performed most advantageously for the patient?

45. In order to answer this question distinctly, it should be considered with reference to two distinct states of injury:—

1st. When injuries require amputation of the arm below the shoulder-joint, or of the leg below the knee, these operations may be done at any time from the moment of infliction until the expiration of twelve or twenty-four hours, without any detriment being sustained by the sufferer with regard to his recovery; although every one, under such circumstances, must be desirous to have the operation over. The surgeon having several equally serious cases of injury of the head or trunk brought to him at the same time as two requiring amputation, may defer them more safely perhaps than the assistance he is also called upon to give to the other cases, the postponement of which may be attended with greater danger.

2nd. This state embraces those great injuries, in which the shoulder is carried away with some injury to the trunk, or the thigh is torn off at or above its middle, rendering an amputation of the upper third or at the hip-joint necessary; and it is this or nearly this state which alone implies a doubt as to the propriety of immediate amputation, and demands further investigation. It is the state to which your attention is earnestly drawn for future observation.

46. It has been implied, if not actually maintained, that a man could have his thigh carried away by a cannon-shot without being fully aware of it, or, if aware of it, that it did not cause much alarm—in fact, that it did not materially signify as to his apprehension, whether the ball took off his limb or the tail of his coat, or only grazed his breeches. An instance of this kind has not fallen under my observation.

47. A surgeon on a field of battle can rarely have a patient brought to him, requiring amputation, under less time than from a quarter to half an hour; a surgeon in a ship may see his patient in less than five minutes after the receipt of the injury; and to the surgeons of the navy we must hereafter defer for their testimony as to the absence or presence of any constitutional alarm and shock; and if they occur, to what degree do they follow immediately after the receipt of such injury. The question must not be encumbered and mystified by a reference to all sorts of amputations after all sorts of injuries, but to the one especial injury—viz that of the *upper half of the thigh.*

48. My experience, which may be erroneous, like everything human, has taught me, that when a thigh is torn or nearly torn off, by a cannon-shot, there is always more or less loss of blood, suddenly discharged, and which soon ceases in death, or in a state approaching to syncope. When the great artery is torn, this fainting saves life, for an artery of the magnitude of the common femoral does not close its canal by retracting and contracting, as a smaller vessel does; it can only diminish it; and the formation of an external coagulum is necessary to preserve life, which the shock, alarm, and fainting, by taking off the force of the circulation, aid in forming; and without which the patient would bleed to death. An amputation, in this state of extreme depression, might destroy life.

49. If the cannon-shot, or other instrument capable of crushing the upper part of a thigh, should not divide the principal artery, and the sufferer should not bleed, it is possible he may be in the state alluded to, in which the patient, for he may not be called sufferer, is said to be just as composed as if he had only lost a portion of his breeches. Nevertheless few have seen a man lose even a piece of his breeches by a cannon-shot, without perceiving that he was indisputably frightened.

50. Whilst some persons, under the loss of a limb high up, are reduced to a state of syncope, or nearly approaching to it, which renders them almost, or even entirely speechless; others suffer extreme pain, and earnestly entreat assistance, under which circumstances, amputation should be performed forthwith. In the former, the administration of stimulants may render the operation less immediately dangerous.

51. Chloroform, or other similar remedies, may produce an effect in such cases yet unknown. Its

careful administration may not destroy the ebbing powers of life, and may render an amputation practicable, which could not otherwise be performed without the greatest danger. It may be otherwise; the point, however, is to be ascertained, although in all cases of great suffering its use should be unhesitatingly adopted.

52. When the sufferer is brought to the surgeon at the end of half an hour, having lost a limb below the thigh or shoulder, by a cannon-shot, he will often be found in a state of such great depression as to be likely to be destroyed by the infliction of a serious and painful operation like amputation. This has occurred to me so often as to induce me to recommend delay for five, six, or even eight hours, if the unfortunate person did not suffer much, and appeared likely to be revived by the proper use of stimulants.

53. This recommendation originated from the fact, that as one seriously wounded man has as much claim as another to the attention of the surgeon, all could not be attended to at the same time; and the success following the deferred cases of amputation was as great, if not greater, than in those on which the operation was more immediately performed.

54. The advantageous results of *primary* amputations, or those done within the first twenty-four, or at most forty-eight hours, over *secondary* amputations, or those done at the end of several days, or three or four weeks, has been so firmly and fully established as to admit no longer of dispute.

55. When an amputation is deferred to the secondary period, a joint is often lost. A leg which might have been cut off below the knee in the first instance, is frequently obliged to be removed above the knee when done in the second.

56. In the secondary period after great injuries, the areolar and muscular textures near the part injured are often unhealthy, the bones are in many instances inflamed internally, and their periosteal membranes deposit on the surrounding parts so much new ossific matter as frequently to envelope in a few days the ligatures on the vessels, and render them immovable, necrosis of the extremity of the bone following as a necessary consequence, protracting the cure for months.

57. Sloughing of the stump, accompanied by inflammation of the vein or veins leading to the cava, frequently take place. This state of stump is often followed by purulent deposits in and upon the different viscera, and principally in the cavities of the chest. Where febrile diseases are endemic, they often prevail; the constitutional irritation is great; the stumps do not unite, or open out is apparently united and slough, and frequently after a few days implicate the veins.

58. In the first edition of my work on Gun-shot Wounds, and on the great operations of amputation, in 1815, I said, alluding to secondary operations:—“ In the most favourable state of the stump, the diseased parts do not extend very deep; yet it is frequently communicated along the vein, which is found to contain pus, even as far as the vena cava.” “ When I have met with this appearance, I have always considered the vessels as participating in (not originating) the disease, which had existed some days, and thereby more quickly destroying the patient.” I further said that after secondary amputations, the febrile irritation allayed by the operation, sometimes returns, and more or less rapidly cuts off the patient by an affection of some particular internal part or viscus, and especially the lungs. “ If it be the lungs, and they are most usually affected, the breathing becomes uneasy; there is little pain when the disease is compared with pneumonia or pleuritis; the cough is dry and not very troublesome; the pulse having been frequent, there is but little alteration; the attention of the surgeon is not sufficiently drawn by the symptoms to the state of the organ, and in a very short time all the symptoms are deteriorated; blisters are employed, perhaps bloodletting, but generally in vain; and the patient dies in a few hours, as in the last stage of inflammation of the lungs, in which effusion or suppuration has taken place.” “ My attention was drawn to it after losing several cases in this way, as a circumstance of more than common accident, from its having happened in a young officer to whom I was paying considerable attention (at Salamanca.) Since that I have had one well-marked case at Santander, of a sudden and fatal affection of the lungs after amputation of the thigh which was under the immediate care of Dr. Irwin,” and of myself as the principal medical officer. The late Mr. Rose, of the Guards, communicated a case after amputation of the arm, to Sir James M‘Grigor, who forwarded it to me, and my old friend, the late Mr. Boutflower, who served frequently under me during the latter part of that war, and aided me in all my labours and views, forwarded to me two cases, from Fuenterabia, at the same time, which terminated fatally after amputation of the arm from the deposition of a considerable quantity of pus in the cavity of the thorax. “ So insidious,” he says, “ was the approach of the disease, that except a difficulty of breathing which supervened a few hours before death, there were no symptoms indicating the existence of such morbid affection.” No further notice was taken of this disease by any one in any of the hospitals on entering France in 1813, neither at St. Jean de Luz, nor Bayonne, nor Pau, St. Sever, Tarbes, or Orthez, until after the battle of Toulouse, where the following cases occurred, which I published in 1815:—

A soldier suffered amputation of the thigh five weeks after the injury at Toulouse, in consequence of a gun-shot fracture, when in a very reduced state, the discharge being profuse, the pain great, hectic fever severe. The third day after this operation, from which he scarcely rallied, he complained of difficulty in swallowing, and pain in the situation of the thyroid gland, which was found next morning to be inflamed. In spite of the means employed, he died on the fourth of this attack, or the seventh after the amputation, in a state of great emaciation. On dissection the whole substance of the thyroid gland was destroyed, a deposit of good pus occupying its place. which descended by the sides of the trachea and œsophagus to the sternum, and had all but found its way into the larynx, between the cricoid and thyroid cartilages on the right side.

Daniel Lynch, wounded through the knee-joint at the battle of Toulouse, on the 12th of April, 1814, had his thigh amputated by the late Mr. Boutflower, on the 8th of May. The night succeeding the operation he passed comfortably. Next day, the 9th, the febrile symptoms were augmented. On the 10th he was worse; pulse 150. On the 11th he was better. On the 16th he was considered to be in a state of convalescence, and went on improving until the 22nd, when fever again recurred. On the 28th his stomach became very irritable; the stump appeared to be nearly healed, the discharge being small, and of good quality; one ligature remained. 30th: Pulse 110; tongue of a brownish hue. During the 31st and 1st of June he got worse, and died. The stump appeared to have united externally, except where the ligatures came out; but on cutting through the line of adhesion, the muscular parts within were evidently unhealthy; the bone was surrounded for some distance by a case of osseous matter, including the remaining ligature, which could not be removed by any force not breaking it. The femur was bare, and showed marked signs of absorption having commenced, and three inches of it must have come away if the man had lived. The extremity of the vein was in a sloughing state.

Having dissected the other extremity for particular purposes, foreign to the examination into the cause of death, a semi-transparent membranous bag, containing good pus, was found accidentally on the tibialis posticus muscle. The blood in the perinæal vein outside of it was coagulated; there were little or no marks of inflammation, and the matter appeared to have been deposited without any. The inner side of the soleus muscle seemed simply to be discoloured.

The first edition having been published before the battle of Waterloo, the opinions and facts stated therein became matters for public discussion, and the reports made by my friends from Brussels, Antwerp, Yarmouth, and Colchester, confirmed all the facts, and I may add all the opinions of the slightest importance. They were published in the second edition in 1820, and were insisted upon in the third, published June 18, 1827.

59. Near forty years have passed away since I stated my opinion, that inflammation of the veins is of two kinds—the adhesive or healthy, from which the sufferers usually recover, as in the cases of women labouring under the disease called phlegmásia dolens, and the irritative or unhealthy, occurring after operations; the disease being communicated by continuity to the vein, rather perhaps than originating in it. I then said I did not believe that pus is carried from the inside of the vein to the general circulation, the office of the vein ceasing as a carrier of blood on the inflammation taking place of its internal tissue, although I admit that the blood in a vitiated state, from the commencing disease in the stump, or in the system, may have for some time passed along it into the general circulation. The inflammation thus commencing may extend upwards and downwards, and across to the opposite side of the body. I never saw it actually in the heart, the sufferers dying by the time it had reached as high as the diaphragm, and in general not so far.

60. When a person, after undergoing amputation, is about to suffer from unhealthy inflammation of the veins, the pulse quickens, and continues above 90, usually rising from 100 to 130. The stomach becomes irritable; there are frequent attacks of vomiting, generally of a bilious character, accompanied by the usual symptoms of fever. A few days after the commencement of the complaint, there is usually a well-marked rigor, followed perhaps by others, but exacerbations and remissions of fever are marked. The skin gradually assumes a yellowish tinge, the perspiration is great, the bowels irregular, the pulse becomes weaker and more irritable, the emaciation is considerable, and the patient gradually sinks; or the febrile symptoms may subside, with the exception of the frequency of the pulse, he rallies a little, but whilst he says he is better, and the appetite even returns, the deterioration in appearance becomes more marked, more deathlike, and an accession of fever rapidly closes the scene. The stump is often not more painful than under ordinary circumstances, neither is there any remarkable pain or tenderness in the course of the vessels.

61. The practical points are, to draw blood to a sufficient extent, but with caution, on the *accession* of fever; to open out the stump as soon as possible, even by a division of the external adhesions, the inner parts being usually unsound; to envelope it in a large warm poultice; to apply cold above—even ice if procurable—in the course of the great vessels, and to soothe the system by calomel, opium, and saline diaphoretic remedies, followed by stimulants, cordials, quinine, and acids.

Private A. Clarke, 79th Regt., had his thigh broken by a musket-ball a little above the knee-joint, at Waterloo, and was admitted into the clinical ward of the York Hospital, in London, in Nov. 1816. The bone being in a state of necrosis, Mr. Guthrie amputated the thigh high up, on the 20th of Jan. Pulse before and after the operation 104. On the 25th, pulse 120; skin cool; tongue moist; appeared weak and irritable. During the 26th and 27th, symptoms of low fever came on. 28th, suffered severely from vomiting, general fever, greater prostration of strength; stump had not united, but discharged good pus. 30th, skin assumed a yellow tinge.

On the 1st of February, had a rigor resembling a fit of ague, and Mr. Guthrie declared his suspicion of the formation of matter, probably in the liver, and of the inflammation of the veins of the stump. The symptoms gradually assumed the character of typhus gravior, and on the 8th he died. On dissection the liver was found enlarged, and weighing six pounds; the other viscera were sound. On examining the stump an abscess containing four ounces of good pus was found in the under part, near the bone. The femoral vein and those going to that part of the stump were inflamed, and contained coagulated blood, lymph, and purulent matter, the disease extending from the femoral to the vena cava. The rigors on the 1st Feb. marked the formation of matter, the typhoid symptoms its continuance, and the inflammation of the veins. Union was discouraged from the first dressing.

The following case is so highly instructive on all points, that it is transcribed from the *London Medical and Physical Journal* for 1826:—

Jane Strangemore, aged twenty-eight, was admitted into the Westminster Hospital, Sept. 24, 1823, with an elastic swelling of the whole of the knee-joint, measuring twenty-seven inches and a half in circumference. The thigh was amputated by Mr. Guthrie on Saturday, the 27th, the bone being sawn through just below the trochanter. She suffered a good deal of pain after the operation. An opiate was administered and repeated, and she passed a good night.

28th.—The pulse, which previous to the operation was 80, had increased to 100; there is however little heat of skin, and she appears easy. Some aperient medicine and saline draughts to be given every four hours. Towards the evening, she vomited a quantity of bilious matter; pulse 120. Three grains of calomel, and one of opium, followed by the common aperient mixture, were ordered, and an enema. The region of the stomach, to which part pain was referred, is to have applied to it equal parts of ether and laudanum.

Oct. 1st.—Better in all symptoms, but looking irritable and ill; no pain anywhere; no sickness; appetite good; pulse still quick.

8th.—Two ligatures have come away; the wound looks well; the edges have nearly healed; eats meat, and with a good appetite.

9th.—Not so well; pulse 120; skin hot; feels ill; complains of pain in the other leg and thigh, which disturbed her rest. Was well purged, and the leg fomented; the pain was principally felt in the calf and in the heel.

10th.—Pulse 130; tongue furred; vomiting again of bile; the pain in the thigh, extending upwards to the groin, and downwards to the heel is intolerable, particularly in the latter part; the thigh and leg much swelled, and tender to the touch, although without redness; the swelling elastic, yet yielding to the pressure of the finger, but not in any manner like an œdematous limb. Mr. Guthrie pronounced the disease this morning to be inflammation of the veins, extending from the opposite side; but after a careful examination, and on pressure, no pain was felt in the course of the iliac vessels of that side, and the stump looked well, save at one small point corresponding to the termination of the femoral vein.

17th.—The symptoms continued nearly the same during the week, the sickness of stomach and purging of bilious matter abating at intervals.

18th.—Is better, and the pain diminished. She looks somewhat better, but is becoming thinner.

20th.—Less pain in the limb, which is swelled, tender to the touch, and all the superficial veins are very much enlarged. The groin more swelled and tender; sickness gone, and her appetite returning; she is allowed good nourishing simple diet. The stump has been poulticed since the 9th to promote suppuration.

25th.—During these five days it was interesting to see the patient eat, and desire solid food, and in her extremely emaciated state, seem to enjoy it. The bowels occasionally deranged. Pulse always from 126 to 136. Is slightly jaundiced in colour, but declares that she is better, and will get well.

27th.—Gradually sank in the evening, and died; the limb having everywhere diminished in size, except at the groin, where the swelling was more circumscribed, resembling the appearance of a chronic abscess approaching the surface. On examination after death, the termination of the vein on the face of the stump was open, and in a sloughy state; above that, for the distance of four inches, and as high as Poupart's ligament, the inside of the vein bore marks of having been inflamed, but the inflammation seemed to have been of an adhesive character; above that point, the inflammation appeared to have been of an irritative or erysipelatous kind, had gone on to suppuration, and the vein was filled with purulent matter, lymph, and blood, partly coagulated, partly broken down. These appearances extended up the cava as high as the diaphragm, and traces of inflammation could be distinctly observed almost in the auricle. This disease had passed along the right external iliac and its branches; it had descended along the left iliac vein and its branches in the pelvis to the uterus, and along the limb to the sole of the foot. At the left groin, the iliac vein becoming femoral, was greatly distended with pus, apparently of good quality; and if the patient had lived a day or two longer, it would have been discharged by a natural effort, as in chronic abscess; the viscera were healthy.

During the last days of this woman's life, no blood was returned from the lower half of the body, unless by the superficial veins; yet she was comparatively easy, although of a yellow hue, emaciated to the utmost, so as to represent a living skeleton; and in this state, with a pulse at 130, craving for, and eating a whole mutton-chop, and more, at a time, with the most death-like countenance it is possible to conceive.

These two cases mark the course, the symptoms, and the termination of inflammation of the veins after amputation, in as clear (if not a more clear) and distinct a manner as any which have been since published, and which they preceded; nevertheless, most authors of more modern date over look the first, and some appear to avoid as mucl as possible noticing the second.

62. After the battle of Waterloo, the wounded of the same regiment were sent indiscriminately, some to Brussels, some to Antwerp. Those who remained at Brussels suffered principally from inflammatory fever after amputation; those at Antwerp from the endemic fever prevailing at the time, beginning as an intermittent and ending often in typhus. The following are instances of endemic fever after secondary amputation, ending in sub-acute inflammation of the lungs and effusion into the chest:—

Charles Brown, 92nd Regiment, forty years of age, at that time a healthy man, was wounded on the 18th June by two musket-balls in the right hand and wrist; and was admitted into the hospital at Antwerp on the 25th June. On the 5th July, the arm was swollen above the elbow; discharge profuse and fœtid; countenance sallow and dejected; fever. 8th: Arm amputated above the elbow. 9th, 10th, 11th: A little increase of fever. 12th: A paroxysm of intermittent, to which he had been subject occasionally since he had been at Walcheren. On removing the dressing, the edges of the stump were retorted; discharge copious and fœtid; respiration hurried; thirst; skin hot; pulse 90; skin yellowish. 14th: Intermittent returned; head affected in consequence of long continuation in the hot bath. 15th: Complains to-day of fulness and pain in the left side; pulse 100; skin of a deeper tinge of yellow; a sense of suffocation when in the horizontal position. A blister was applied to the whole of the side of the chest. 16th: Became delirious during the night; vomited frequently; became insensible at the hour when the paroxysm of intermittent fever was expected to return; and died in the evening. On opening the chest, the lungs were found adhering to the pleura costalis in several places, and were hepatized; a quantity of serum and lymph was contained in the left pleura, so as to compress the lung, in which there was a small abscess. The liver was twice the natural size.

J. Lomax, of the Guards, was wounded at Waterloo, suffered amputation of the right arm on the 23rd August, and arrived at the General Hospital, Colchester, on the 27th August, in a state of high fever, and unable to give any distinct account of himself. He had had the ague, he said, for many days, which left him for a short time, but returned again when on board ship; that on the 25th he was attacked by pain in the side, which was very severe on the 26th, on which day a blister was applied, which greatly relieved him. The stump had an unhealthy appearance, the edges of the wound evincing a disposition to separate. On the 28th he was free from pain; fever unabated, with a tendency to delirium. He sunk rapidly on the 30th, and died on the 31st, notwithstanding the use of the most powerful stimuli. A quantity of serum was found on dissection on the left side of the chest, the pleura pulmonalis on both sides was covered with a thick layer of coagulable lymph. The pericardium was distended with fluid. The liver was enormously enlarged, pushing up the diaphragm, and displacing the lung, having in its substance a large abscess containing at least a quart of pus. The stump did not exhibit any peculiar appearance.

O. Sweeney, 90th Regiment, aged nineteen, was wounded in the hand on the 18th of June, 1815, and taken to Brussels. On the 5th of July, he left for England, and arrived at Colchester on the 14th. The wound shortly assumed an unhealthy appearance; hæmorrhage took place, and the arm was amputated on the 30th. The day after, he had severe rigors for fifteen minutes, followed by fever. The next day, he was better, and appeared to be doing well until the 6th of August, when fever again recurred. Stump quite healthy in appearance. On the 7th, he was attacked by purging and vomiting, which lasted several hours, and reduced him much, returning at intervals until the evening of the 8th. Small quantities of wine and opium agreed best, and a blister was applied to the scrobiculus cordis. On the 9th, he complained of pain and tenderness in the abdomen, which were relieved by fomentations and an enema. The stump looked well, and discharged healthy pus in small quantity; and the ligature on the brachial artery came away. On the 10th, his strength failed, and the tongue and teeth were covered by a dark sordes. The adhesions of the stump appeared disposed to separate. At night he was restless, with low delirium; and on the 11th, died, with the complete facies Hippocratica. On raising the sternum, the pleura of the left lung was found adhering to that of the ribs, and covered by a thick layer of coagulable lymph. The lung was highly inflamed; and on cutting into its substance, a number of small tubercles were observed. The pericardium and left cavity of the thorax contained more than the usual quantity of fluid. During the progress of this case, eleven days from the amputation, no one symptom existed which could induce a suspicion of inflammation going on in the thorax. The stump was in a sloughing state, but the disease did not extend along the brachial vein.

Thomas Haynes, 23rd Light Dragoons, aged nineteen, was wounded by a spear on the back of the left forearm, at Waterloo, which appeared to do well until he left Brussels for England, when it assumed an unfavourable appearance, and on his arrival at Colchester, on the 14th of July, it was in a sloughing state. The pain was excessive, and the tenderness around the whole circumference of the sore was so great, that he could not suffer the slightest pressure with the finger. He was largely bled, and a solution of sulphuric acid, one drachm, to twelve ounces of water, was applied twice a day to the whole surface, and the whole kept wet with cold water, which treatment was continued until the 21st, during which period he was bled five times, to about twenty ounces each time. The acid solution was increased from one drachm to an ounce, and care was taken that the sloughing portions only were touched with it. His health was considerably amended, and on the whole a favourable result was expected. At two on the 22nd, a sudden hæmorrhage took place, to the amount of three pints; a second ensuing on the 23rd, the arm was amputated. The pulse continued quick; in other respects he was well, until the 25th, when some accession of fever took place, and increased. He was bled to ten ounces, and purged. On the 26th, the line of incision in the stump appeared to be healed; and with the exception of the pulse at 140, he had no unpleasant symptom on the 27th, and was free from pain of every kind. On removing the centre strap, which had been allowed to remain, a large collection of matter of good quality issued. On the 28th, he was much the same. On the 29th, the countenance had assumed a death-like paleness; pulse 120, but intermitted every fifth pulsation; breathing short and laborious, with some pain in the chest, and every symptom of effusion having taken place. He died at two P. M., six days after the amputation.

The only morbid appearance found on dissection was a large quantity of serous fluid in the pericardium, which was distended by it, and on both sides of the chest. The heart and lungs, with their membranes, were quite sound. On examining the stump, the sanative process was found to have been entirely confined to the integuments. No appearance of granulation could be perceived on the muscular surface.

This last case is worthy of especial observation, on account of the manner in which sulphuric acid was used in a sloughing state, from one drachm to one ounce of the acid to twelve ounces of water, not as something new, but as an ordinary application; and I am doubtful whether there is any case on record of such use, anterior to it. Is the use of strong acids in sloughing cases also due to the war in the Peninsula? Delpech says Yes,—a testimony I shall confirm in its proper place.

I have departed in some degree, in the foregoing observations, from the aphorismal form I had prescribed for myself in the commencement of these Commentaries. I have done so as an act of justice to those officers who served at Toulouse, Brussels, Antwerp, and Colchester, in 1814 and 1815, who are all now no more, and who laboured hard in the then early investigation of these different states of disease, and have not received the reward they merited of public acknowledgement. I have endeavoured, as the Chancellor of the Exchequer says of Lord George Bentinck, to preserve for them the chastity of their honour.

63. Mr. Hunter, in 1793, had described the appearances and the fatal consequences of inflammation of the veins, as a consequence of injuries inflicted on the surrounding parts, but I apprehend I was the first person to point out the prevalence of this complaint after secondary amputation, and its intimate connexion with certain low inflammatory attacks, attended by destructive purulent depositions, particularly in the chest, and their more chronic deposit in other parts. Mr. Rose, of the Guards, published some observations in the fourteenth volume of the *Medical and Chirurgical Transactions*, in 1828, confirming the remarks made by me in print thirteen years before, but without referring to them. Mr. Arnott has an able paper on the subject in the fifteenth volume. M. Sédillot thinks he has detected globules of pus in different parts of the circulating system in persons who had died of this disease. Dr. Henry Lee, 1850, one of the last English writers on the subject, professedly doubts the accuracy of the observation; and this point remains amongst others for further investigation. He admits, however, that in cases where, from long continued disease, there have been repeated introductions of vitiated fluids into the circulation, the blood loses much of its coagulating power, which prevents the admission by the veins of purulent matter, by forming with it in them coagula, constituting he thinks the essential disease. When the coagulating power of the blood is thus lost, he thinks it possible that pus-globules may then be found circulating in the blood. Other late writers, and lastly Dr. Hughes Bennett, think these diseases are dependent on the introduction of a peculiar animal poison. Attention should be paid by the medical officers of the public service, wherever there is war, to the state of the blood, and to the inner lining of the diseased veins under the microscope; and all those gentlemen, when in London, should study its use under Mr. Quekett at the College of Surgeons, to whose lectures they have the right of admission, and to whose kindness they will all soon feel greatly indebted. I am not aware that the writers referred to have added anything to the practical facts I had related so long before, which is much to be regretted. It is of little use, although it is a step in the right direction, to describe a disease, or even to show why and wherefore it destroys, unless a means of prevention or of cure can also be indicated.*

64. In the irritable and sloughing state of stump alluded to, hæmorrhages frequently take place from the small branches, or from the main trunks of the arteries, in consequence of ulceration; and it is not always easy to discover the bleeding vessel, or when discovered to secure it on the face of the stump; for as the ulcerative process has not ceased, and the end of the artery which is to be secured is not sound, no healthy action can take place, the ligature very soon cuts its way through, and the hæmorrhage returns as violently as before, or some other branch gives way; and under this succession of ligatures and hæmorrhages the patient dies.

Some surgeons have in such cases, preferred cutting down upon the principal artery of the limb, in preference to performing another amputation, even when it is practicable; and they have sometimes succeeded in restraining the hæmorrhage for a sufficient length of time to allow the stump to resume a more healthy action. This operation, although successful in some cases, will generally fail, and particularly if absolute rest cannot be obtained, when amputation will become necessary. The same objection of want of success may be made to amputation; and on a due comparison of the whole of the attending circumstances, the operation of tying the artery in most cases is to be preferred in the first instance, and if that prove unsuccessful, then recourse is to be had to amputation; but this practice is by no means to be followed indiscriminately. The artery ought to be secured with reference to the mode of operating, as in aneurism, but the doctrines of this disease are not to be applied to it, because it is still a wounded vessel with an external opening.

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* The India Company have supplied the principal hospital of each presidency with one good microscope at least; and one of these, with a person who understands its use, should be attached to the principal hospital in the field during the war with the Burmese.

To obviate all difficulties, the part from which the bleeding comes should be well studied, and the shortest distance from the stump carefully noted at which compression on the artery commands the bleeding; and at this spot the ligature should be applied, provided it is not within the sphere of the inflammation of the stump. In case the hæmorrhage should only be restrained by pressure above the origin of the profunda, and repeated attempts to secure the vessel on the surface of the stump have failed, amputation is preferable when the strength of the patient will bear it, to tying the artery in the groin.

When hæmorrhage takes place after amputation at the shoulder-joint, it is a most dangerous occurrence. An incision should then be made through the integuments and *across* the great pectoral muscle, when the artery may be readily exposed, and a ligature placed upon it without difficulty anywhere below the clavicle.

If the state of the stump in any of these cases depend upon the bad air of the hospital, the patient had better be exposed to the inclemency of the weather rather than be allowed to remain in it.

In crowded hospitals, hæmorrhages from the face of an irritable stump are not unfrequent, and often cause a great deal of trouble and distress. It is not a direct bleeding from a vessel of sufficient size to be discovered and secured, but an oozing from some part of the exposed granulations, which are soft, pale and flaccid. On making pressure on them, the hæmorrhage ceases, but shortly after re-appears, and even becomes dangerous. This hæmorrhage is usually preceded by pain, heat, and throbbing, in the surface from which it proceeds. There is irritation of the habit generally, and a tendency to direct debility. The proper treatment consists in the removal of the patient to the open air, with an antiphlogistic regimen in the first instance, followed by the use of quinine and acids; cold to the stump, in the shape of pounded ice or iced water; with occasional styptics to suppress the immediate bleeding. Escharotic and stimulating applications should be used with caution.

LETTSOMIAN LECTURES.

Delivered before the Medical Society of London.

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LECTURE III.

On Abnormal Micturition.

MR. PRESIDENT AND GENTLEMEN,—Having, in the preceding lectures, endeavoured to explain to you the structure of the urethra and the physiology of micturition founded upon the improved knowledge we now possess of such structure—having endeavoured to explain the healthy functions of the bladder and urethra,—I propose, upon the present occasion, to call attention, in the first instance, to those cases of departure from these healthy functions simulating stricture; and, subsequently, to offer a few observations upon certain points connected with the pathology of the actual and permanent form of that disease.

When we consider the sympathy which exists between the brain and the other organs of the body—when we remember how the due performance of the functions of each depends upon the integrity of the other,—we can readily understand the influence exerted by the brain and nervous system generally, over the organs of micturition; and it may perhaps serve to elucidate certain points which would otherwise be difficult of explanation, to bear in mind that though the bladder and urethra are supplied with nerves from the cerebro-spinal system, they, like all other parts composed of organic muscles, and consequently endowed with involuntary action, are largely supplied with nerves from the organic or sympathetic division; which, to a certain extent, render the parts independent of the cerebro-spinal nerves, whilst they, at the same time, serve to maintain their sympathies with the other organs of the body, and show how departure from health, in any other organ however remote, may induce sympathetic irritation in these parts, and produce affections simulating stricture.

In describing healthy micturition, I endeavoured to show the analogy existing in the muscular arrangement of those parts possessing organic muscle; and we find the same analogy obtains as to the nerves supplying these parts, especially in those instances endowed with a compound function, partly voluntary, partly involuntary. And wherever there is the necessity of maintaining or inducing harmony between these voluntary and involuntary actions, we have a combination of nervous supply from the cerebro-spinal and sympathetic systems of nerves: witness the pharynx, with its glosso-pharyngeal nerve and pharyngeal plexus; the larynx, with its recurrent, internal laryngeal, and laryngeal plexus; the rectum, with its branches from the sciatic nerve and hypogastric plexus; and, lastly the bladder and urethra, with their nervous supply from the same source.

Whatever interferes with the nervous system at the same time influences the functions of the urinary organs, either by exalting, diminishing, suspending, or altogether destroying their normal irritability, and so rendering their actions uncertain, irregular, or arresting them altogether. These causes demonstrate their effects in various ways; sometimes in constant and urgent desire to micturate, accompanied with increased flow of urine, unattended with pain—as in fear, anxiety, or mental excitement; at other times in constant and incontrollable micturition, so incontrollable as almost to be involuntary, attended with great pain; the bladder ejecting the water in gushes as soon as it receives it from the ureters; at other times, again, in irregular contractions of the muscular fibres surrounding the urethra, unaccompanied either by inflammation or disorganization, constituting true spasmodic stricture, capable of producing retention of urine, varying in duration and degree.

All who have had much experience in cases of stricture recognise the influence of the mind upon the disease, and of the disease upon the mind. The instrument will pass easily to-day, but before the next visit the patient may have experienced cause for anxiety, and we then find all attempts to introduce the same, or a much smaller one, in vain; and I believe such attempts prejudicial, and better abstained from.

The following case will illustrate the effect of mental anxiety upon this disease:—

Some years since, a gentleman, a captain upon half-pay, came to me with obstinate stricture, having for the preceding fourteen months been under the care of a surgeon recently dead. He was extremely desponding, his urethra very irritable and his urine came away, merely in the smallest stream, whilst he was tormented with constant desire to micturate. He told me that he had seen his surgeon daily for the whole fourteen months; and so impressed was he with the necessity for doing so, that although I urged him to the contrary, he insisted upon coming daily to me also. After his next visit, having talked his case over with him, and having persuaded him to allow me to omit passing the instrument,—which I found had been done daily for the preceding fourteen months, down to the stricture, but no further,—he offered me the fee, which I declined, telling him frankly, that as I considered he would be much better if he came to me every second day instead of every day, I did not feel justified in taking money for that which I considered was prejudicial to him, but that if, after what I had said, he was determined to come, of course he was at liberty to do so. The next day he came again, and the instrument passed readily into the bladder. "Oh!" he said, "Doctor, you have made quite a different man of me already. For the last fourteen months I paid a guinea daily, and to enable me to do so, I was obliged to sell out a portion of the little I had in the bank; and I assure you I have been most unhappy from anxiety lest my money should not hold out until I was cured, as I did not make any progress." He returned home cured in the course of five weeks.

I have also met with cases wherein anxiety of mind has produced well-marked symptoms of spasmodic stricture, in urethras free from organic impediments or previous disease. Retention of urine in some instances depends upon the non-action of the vesical muscular fibres alone, this non-action or passive condition, whether temporary or permanent, resulting from the arrest, for the time being, of the nervous influence controlling them. In this class I would include all those cases of retention of urine depending upon shocks or injuries to the nervous system, without any local irritation to the bladder or urethra. A man's thigh was amputated: he had complete retention of urine, requiring his water to be drawn off for several days. Another patient was run over, and had his knee severely crushed: he suffered from complete retention until he died, three days after. I lately attended a gentleman with gangrena senilis. He ultimately died: and for some days preceding his death, he had complete retention of urine. The same obtains in some cases of fevers; whilst those instances resulting from direct injury to the brain and spinal marrow are too well known to require further comment here.

Retention of urine may also depend upon aberration of the mind producing an absence of that necessary harmony which should exist between the voluntary and involuntary muscles of the part; an absence of volition on the one hand, or such continued suppression of that volition on the other, that unnatural distention of the organic muscular fibres takes place, and they are, for the time being at least, deprived of their power of action, although micturition is not permanently arrested—it is only postponed; the organic muscular fibres still retaining the capability of resuming their power of action. For this reason we can scarcely look upon such cases as those of paralysis of the bladder, although Sir B. Brodie has arranged them under this head in his valuable work on Diseases of the Urinary Organs; and I would draw this distinction between the two affections: that in those now under consideration the power exists, but the guiding or exciting will is either perverted or wanting; in true paralysis of the bladder, the will may be present, but it is the power to obey that will which has been destroyed.

In some instances the cause is confined to the voluntary muscles of the urethra; in others, it commences in these muscles, but is prolonged and sustained by the non-action of the bladder. As examples of the former, I would cite cases of retention of urine occurring in hysterical females. Here this arrest of volition may continue for many hours, even for some days, but the bladder retains its power of contraction; and it would appear in these cases that the same cause which for the time arrests volition as to micturition, also exerts considerable influence in diminishing the secretion of urine; for if left to themselves, when the bladder becomes well distended, and the stimulus of micturition is excited, volition returns to the voluntary muscles of the urethra, and they no longer oppose the passage of the urine. If, on the other hand, we artificially interfere by withdrawing the water, we prevent the accession of the natural stimulus, we suspend volition, and so long as we interfere, so long we continue hysterical retention. It is unusual in other cases for retention to persist for so lengthened a period without the muscular fibres of the bladder becoming over-distended by the quantity of water secreted.

Of the second class, or where retention commences in the voluntary muscles of the urethra or perinæum, and is sustained by the bladder, we have examples in those cases where the natural functions are kept so long in abeyance by the will, that they are at length unable to perform their part. The remarkable case of the lawyer, related by Sir B. Brodie, belongs to this class. He had doubtless suppressed his natural desires in the first instance; whilst the intensity of his application and the interest of the business in which he was engaged had so totally alienated his mind from those desires that they passed by unobserved, and so over-distention and temporary loss of power of the bladder ensued. The most surprising fact connected with this case is the total absence of all volition—the absence of sensation in the bladder. For we read, that after two days, when the patient recollected he had not voided his urine for so long a time, his attention was not arrested by any desire to micturate, but merely by the consideration that he ought to do so. In ordinary cases, although the bladder may have become over-distended, it retains sensation, and the sufferings of the patients cause them to exert very violent efforts of the abdominal and other voluntary muscles, which, as I have before observed, in the majority of cases only increase their difficulties.

Patients sometimes suffer from partial retention of urine, with well-marked symptoms of spasmodic stricture, whose symptoms, however, are aggravated instead of relieved by the employment of instruments. Such cases require selection, discrimination, and an acquaintance with general pathology, equally with every other affection to which the human frame is liable; and it cannot too forcibly be impressed, that whilst on the one hand symptoms of stricture are often present without the actual disease, the disease itself may be induced and established, if at the onset the true character of the complaint is mistaken, and the patient is subjected to an improper course of treatment. The introduction of a bougie, however carefully and dexterously performed, can never be effected without some violence to the lining membrane of the urethra. However smooth the instrument, however light the hand of the surgeon, more or less bruising of the delicate papillæ must result, with consequent liability of inflammation, thickening, &c. The urethra is not a mere tube, neither is its inner surface smooth. The former, as has lately been demonstrated by Mr. Quekett, is thrown into rugæ towards the bulb; whilst the latter, as was pointed out by Mr. Hogg and myself, is covered by papillæ, some of which present loops, others being more or less tuberculated.

Mr. Quekett, however, was forestalled in his discovery of the folds of rugæ of the urethra, by the late Sir E. Home, who figured them (though more roughly than Mr. Quekett has done) in his work on Strictures. When, from any cause, the muscular fibres of the urethra are thrown into an irritable condition, or into a state of undue contraction, these rugæ must of necessity be approximated closer together, and the papillæ probably dovetailed one with another, a condition which must be materially aggravated by the coexistence of congestion of the lining membrane, as in those cases denominated inflammatory spasmodic stricture. Now if we bear in mind that it is in such cases of functional strictures or impediments, unaccompanied by change in structure, that the muscular contraction is greatest, and the approximation of the rugæ and villi closest,—for where such disorganization exists, the muscular contraction is weakened instead of strengthened at that point,—we can readily understand that those instances in which the employment of instruments is contra-indicated, are exactly those cases in which the opposition to the passage of such instrument would be greatest; and so we find in practice.

A gentleman applied to me, some months since, on account of difficulty in passing his urine. He informed me that for above twelve months he had experienced great suffering from inability to micturate, that he had almost constant desire, and that he would suddenly be seized with such urgent want that he would imagine he could scarcely control it; but that upon endeavouring to pass his urine, although his sufferings were most severe from his almost incontrollable efforts at expulsion, he would have to remain in this condition for above half or three-quarters of an hour before the urine began to flow, which, however, it never did in a stream, but merely guttatim. His sufferings had increased so much of late, that he had been obliged to give up all society. He wound up the relation of his case by adding that he had been told he had stricture, but that he dreaded the passage of an instrument so much he was sure he should die if I attempted to employ one. He had never suffered from gonorrhœa. His pulse was very quick and irritable; he had a peculiar twitching of the muscles of his face and eyelids; and I knew that his avocations were those attended with great mental labour, frequently with anxiety. I concluded that it would be better to soothe him into good health, than to attack the local symptoms; and I accordingly prescribed some hyoscyamus, with hop and camphor mixture at bed-time, with twelve drops of the muriated tincture of iron thrice daily. In about a week he came to me in high spirits, and informed me that he was very much better; that he could now sleep through the night without being disturbed; that he had almost lost the frequent and constant desire to micturate; and that when he required to do so the delay and difficulty were much less. I advised him to continue the treatment for a short time longer; he did so for two or three weeks, when he informed me he was quite well.

Again, there are instances where the difficulty of micturition appears to depend upon a relaxed and flabby condition of the urethra, and general want of tone, probably accompanied by more or less want of contractile power of the bladder itself. Such cases are characterized by the general symptoms of stricture, though, in point of fact, there is no stricture present; the patient, by dint of straining, is able to squeeze his urine out by drops, or in a very fine stream. Should the surgeon be misled by these symptoms, and employ a small catheter or bougie, he will rarely succeed in its introduction, whilst his attempts in most instances will be followed by alarming hæmorrhage. On the other hand, a large-sized instrument readily enters the bladder, without any impediment whatever to its introduction. In a case where I was consulted, I was told that nothing would pass, that upon two or three occasions, after futile attempts with small instruments, the bleeding had been so excessive, that no further trial could be made for some weeks, when, unfortunately, the same degree of bleeding ensued: I passed a No. 12 with ease. But there is a point connected with this form of stricture which is worthy attention: it is, that here a much larger-sized instrument is required to effect a cure than in the ordinary cases of stricture, whether spasmodic or otherwise; for whereas in the latter instances the urethra will rarely admit a larger-sized instrument than a No. 13 or 14, in those to which I now allude, a No. 20, or even larger than that, will sometimes be required before the patient experiences any great degree of benefit. I have known patients who have had a No. 14 passed with complete facility, express their surprise and disappointment at the slight effect produced upon the flow of urine or the size of the stream, they even now being able to micturate merely in drops. In fact, it is not until the urethra has been stretched to its utmost without violence to the parts, that any decided benefit is derived or to be expected. And here the same rule applies as in ordinary cases—that we may, and indeed should, increase the size of the instrument so long as the orifice of the urethra admits of its introduction without over-distention or the production of pain.

Patients who suffer from this form of disease are mostly of irritable temperament, more or less subject to dyspepsia, or have been exposed to great mental anxiety. Great attention, therefore, should be paid to the general state of health, at the same time that the local symptoms are treated; whilst the urine should be examined and tested from time to time, to ascertain its condition, as any departure from the healthy and natural standard presents a very decided obstacle to a cure.

A gentleman consulted me for inability to pass his urine, excepting in a very small stream, accompanied with a sensation of weight and discomfort in the course of the urethra and perinæum. He had not suffered from gonorrhœa, but had been exposed to intense mental anxiety, arising from the failure of his father in business and his endeavour to carry on the same with very inadequate resources. He had been under the care of a surgeon of eminence for several months, and that gentleman had endeavoured from time to time to introduce a No. 2 or 3 bougie or catheter, but without any other result than profuse hæmorrhage. The patient was much excited whilst relating his case; he could not keep himself still for one instant; his arms and legs were in constant motion, and he appeared to vomit his words rather than to utter them—they would hardly flow fast enough to please him. His pulse was very small and rapid, his tongue furred, and his breath hot and offensive. I concluded that he had no permanent stricture, but that the urethral symptoms were merely sympathetic of general debility and of the derangement of the digestive organs caused by the mental depression under which he had been suffering. After considerable persuasion, he allowed me to introduce a No. 10, which at once entered his bladder. However, he derived but little relief from its introduction, nor could he void his urine in a stream, or with anything like comfort, until a No. 19 had been passed some two or three times; attention was at the same time paid to his health generally, and he left me very much better. I heard nothing more of him until last summer—a period of nearly six years having elapsed. He again consulted me for a return of his former symptoms, produced, I have no doubt, by the sudden death of a near relative. I could readily introduce his former full-sized instrument; but his digestion was very much out of order, and his urine loaded with the urate of of ammonia. I did not repeat the introduction of the instrument; but by paying attention to the other points, the urethral symptoms subsided, and he was shortly enabled to leave town on a journey, perfectly restored to health. Again, a gentleman lately applied to me for a dull, heavy pain in his loins, weight in the perinæum, and difficulty of passing his urine, which flowed only in a very fine stream. Though a large, bulky man, his face was pasty, his muscles soft and flabby, and his pulse weak and small. He denied having ever contracted gonorrhœa, or ever having suffered from discharge of any kind from the urethra. However, from the symptoms, I considered it prudent to examine his urethra with a sound, and accordingly attempted to introduce a No. 8. It entered readily, and the pendulous portion of the urethra being very long and flabby, all but about an inch of the instrument passed, but without entering the bladder: it appeared to be prevented by something soft, unlike the firm resistance of an ordinary stricture, either permanent or transitory; whilst, at the same time, the endeavours to reach the bladder caused the penis to recede, and gave rise to considerable bleeding. From the impression given, as though I was pressing against a piece of soft and elastic structure rather than a firm substance; from the general appearance of the patient; the recession of the penis; the non-precedence of gonorrhœa or gleet; the profuse hæmorrhage,—which, taken collectively, would appear to be diagnostic of this particular malady,—the impediment to micturition appeared to me to depend upon a flabby state of parts emanating from debility; and I therefore took a No. 12 metal bougie, which passed without any pain to the patient. I ordered him quinine, with the citrate of iron. Two days afterwards, I passed a No. 13, and in another two days No. 14, and so on until he was cured. This, I believe, is an unusual case. I have frequently met with instances wherein a No. 6 or 8 would pass, where smaller instruments would not; but I have never before seen a case where the flabbiness of parts has been so great as to prevent a No. 8 entering the bladder, whilst a No. 12 passed readily.

The preceding are instances of retention of urine, independent of disease of local mischief, but traceable to abnormal condition of the mind or nervous system, and consequent want of sympathy in the action of the several parts. Complete retention of urine, however, will sometimes occur from local irritation, or from irritation in the parts adjacent to the bladder. And it is curious, that although this obtains, although operations on the rectum, as well as ingesta within that viscus, will produce complete retention of urine even of some days' duration, still the bladder will bear foreign bodies within its cavity without anything like retention taking place. The case I am now about to relate will also demonstrate that a viscus may contain a foreign body capable of causing or inflicting severe, nay, fatal mischief on neighbouring parts, without at the same time suffering any appreciable organic injury itself.

I tied hæmorrhoids for a gentleman; the operation was not more severe than ordinary, but he had retention of urine for more than ten days: and we know very well that the irritation of piles alone will sometimes induce retention of urine without any operation at all; and the following case will show how worms in the intestines will occasionally affect the urinary bladder, and what fatal mischief will sometimes ensue.

A patient was admitted under my care into the Charing-cross Hospital with retention of urine. He had for some ten months previously suffered from symptoms of stone in the bladder. His urine was drawn off without difficulty, and I afterwards examined him for stone, but soon found that his suffering did not arise from that cause; and therefore supposing that they might possibly depend upon some ingesta in the rectum or large intestines, I ordered him a dose of turpentine and castor-oil, which acted freely, and dislodged a round worm about five inches long. His symptoms for the time were materially relieved, but on the following day he had another attack of retention of urine, and the catheter drew off about a pint and a half of clear urine. His tongue was furred and dry; skin hot; pulse 120, small; bowels confined; he had passed a bad night. To have a mild aperient, with nourishing diet and four ounces of wine. The next day: Has not had any more retention of urine; on the contrary, he has been able to pass his water in a continuous stream; his tongue is furred, but moist; skin hot; no appetite; his bowels acted freely from the medicine, but without any further appearance of worms. On the day after, he was much worse, irritative fever having set in; tongue brown and dry; lips parched; skin hot and dry; abdomen tympanitic; pulse 120, very small; could not pass his urine, which was high-coloured, small in quantity, and very offensive when drawn off. To have bark and ammonia, and the nourishing diet, with wine, to be continued. He never rallied, however, from this state, but died in the course of the following night.

Post-mortem Examination.—Upon laying open the abdomen, the peritonæum presented symptoms of general inflammation, with effusion into the cavity. The sub-peritonæal cellular tissue around the bladder, and between the bladder and rectum, was infiltrated with pus. The mucous membrane of the bladder showed signs of chronic inflammation. The kidneys, though gorged with blood, were otherwise perfectly healthy, as were the intestines and the remaining viscera.

If I had not watched this case very attentively myself, I might have imagined that some mischief had been done by the catheters, or in sounding: but there never was any difficulty in introducing the instruments; neither did he on any occasion, either at the time or subsequently, complain of pain being caused by their introduction.

The time that remains is obviously too limited for me to enter into anything like a detailed account of permanent stricture or its treatment. I shall therefore confine myself to a few remarks upon the pathology of such strictures, being the result of microscopic investigations which I have recently made.

We have seen, in this as well as in the preceding lecture, the analogy existing between the several hollow viscera in the body, not only as regards their functions, but also their structure, the arrangement of that structure, and nervous supply. If we inquire still further, and study the pathology of these parts, we find the same analogy may be traced, especially as regards the particular affection under consideration. I will not detain you in endeavouring to explain why permanent strictures of the urethra occur more commonly at the junction of the bulb with the membranous portion of the urethra; for,—setting aside the consideration that this portion of the urethra is the spot of all others most acted upon in the different conditions of erection and relaxation of the corpus spongiosum, and that spot, consequently, at which we should naturally expect stricture or mischief to occur,—if we turn to such affections in other parts of the body, we find that for the most part they seem subject to a general law—that strictures, when single and organic, taking place in canals possessed of varied dimensions, are commonly met with at those points where the larger portion of the canal merges into a smaller one, or *vice versâ*. In the alimentary canal, for instance, this commonly obtains. Strictures of the œsophagus almost always take place opposite the cricoid cartilage, or fifth cervical vertebra, where the pharynx merges into the œsophagus. Again, we find permanent stricture where the œsophagus joins the stomach, the cardiac orifice; where the stomach joins the duodenum, or pylorus; where the sigmoid flexure of the colon joins the rectum; and at the lower part of the rectum, where the dilated portion of the gut joins its more contracted termination. And likewise, in the lacrymal apparatus, we find that constrictions mostly obtain where the lacrymal sac joins the ductus ad nasum, although I have also observed obstructions of the junction of the lacrymal ducts with the sac. And so it is in strictures of the urethra: they mostly occur at that spot where the narrower membranous portion passes into the more dilated fossa of the bulb. I would, however, offer a few observations upon the formation of permanent strictures, and likewise attempt to explain the cause of retention of urine in some of these cases.

We find, notwithstanding the prevailing opinion to the contrary, that these strictures are formed in two ways; first, by the deposit of a false membrane upon the free surface of the urethra; and, secondly, by the thickening of the mucous membrane itself, the effusion of lymph into the subjacent cellular tissue and other structures, producing consolidation and thickening of the several parts, which, pressing upon the mucous membrane, push it inwards, and thus constrict the canal, diminishing its calibre. This latter is the usually described cause of permanent stricture; but from a very careful examination of many urethras, I am convinced that these affections depend upon adventitious membranes much more frequently than is commonly supposed, especially in those preceded by acute inflammation; and this not merely in that form recognised as "bridle strictures," but in those of considerable extent and duration.

To gain as much information as possible upon this point, I have examined all the urethras I could get. I have examined the urethras of those who have died of other diseases, in whom the existence of stricture had not been suspected; I have also, through the kindness of my friends, been enabled to examine preparations taken from those who had at one time suffered from this malady, and who were supposed to have been cured; I have also been enabled to examine those taken from patients who have died whilst labouring under the complaint. And the result of these examinations is the conviction that permanent stricture from false membrane within the canal upon its free surface, is a common and frequent occurrence; and I am confirmed in this view by my friend Dr. Beith, who has rendered me great assistance, and who, from his position at Greenwich Hospital, has had ample opportunities of studying these diseases, to which he has devoted much attention. Some surgeons have based their disbelief of this fact upon the supposed want of organization of those membranes. I will not take up your time in discussing this point; I would only remark that we can scarcely deem a part disorganized, or rather, void of organization, which though placed as it were "extra corpore," is capable of maintaining its connexion with vital parts, of resisting forces constantly acting upon it, and of maintaining its vitality for several years against the inroads of decomposition and putrescence. It is true we may not be able to trace blood-vessels directly into them, but neither can we trace blood-vessels into the cornea of the eye, nor the cartilages of the joints, yet we do not dream of denying the organization of either.

A patient had stricture of several years' duration, and from drink brought on complete retention of urine, which could not be overcome. Nothing would enter his bladder. Accordingly, as a *dernier ressort*, the surgeon under whose care he was, punctured his bladder. This gave him instant relief; the stricture yielded, as it is commonly expressed, the urine in the course of time beginning to flow through the natural channel, and everything went on well for a few days. Erysipelas, however, came on; he sank into a typhoid state, and died. I did not see the patient during life; but the gentleman under whose care he was, most kindly and skilfully removed the parts entire and sent them to me, and I examined them with Mr. Hogg.

The cause of death was evidently the escape of urine into the cellular tissue around the puncture, as this was in a sloughing condition; but the original mischief consisted in a deposit of false membrane, constituting a stricture of about an inch and a quarter in length, situated at the junction of the bulbous with the membranous portion of the urethra. This invaded the canal so much, that it must doubtless have presented a great and distressing obstacle to the passage of urine under ordinary circumstances, let alone the increased turgescence and excitement produced by drink. The membrane was straw-coloured, and for the most part adhered so firmly to the mucous membrane that it was only by careful dissection we could separate the one from the other; indeed, so identified were the two, that had we remained content with a mere cursory or superficial examination, we might have imagined the morbic appearances to have depended upon thickening and puckering of the mucous membrane itself, rather than upon what actually obtained. It was only by the microscope that we could determine what was really the condition of parts.

The existence of this false membrane was proved by some points of great interest. Among others, that although this newly-deposited structure appeared to be invested by mucous membrane when examined by the naked eye, the investment, though smooth and shining, did not possess the actual organization of mucous membrane, but when viewed through the microscope, presented more the character of condensed cellular tissue. It did not possess either villi or papillæ upon its free surface. It was not invested by epithelial scales; and what was extremely interesting, as incontrovertibly proving the non-identity of this membrane with the proper mucous canal, we found that, by carefully dissecting it away, we came down upon the layer of epithelial scales, separating it, as it were, from the proper mucous membrane of the urethra. We could not detect any appreciable change in the structure, either of the proper mucous membrane of the urethra or of the parts surrounding it; and hence we could not arrive at any other conclusion than that, in this instance at least, the prevailing notion that permanent organic stricture (other than the bridle constriction) was always produced by mischief without the canal, was erroneous; and other cases which we have had the opportunity of examining have not only strengthened this opinion, but have led me to conclude that it is not merely a possible but a frequent cause of this malady. There was another point also of the greatest interest, and one which, so far as I can trace, has never been noticed before. We have seen that this false membrane was for the most part adherent. It was so for about an inch of its anterior extent, where we have observed it so closely attached as almost to be identical with the subjacent tissue; but towards the bladder this new structure sent off two processes, which extended to the prostate, and became lost on the mucous investment of the outer part of the sinus prostaticus. These two processes were the limbi of a semi-lunar valve, constituting the vesical extremity of the false deposit, which was here separated from the subjacent mucous membrane to the extent of some half an inch, constituting a regular valve, having its free lunated edge towards the bladder, whilst elsewhere it was continuous with that portion attached to the urethra. On carrying a probe from the bladder along the urethra, it passed under this valve, and entered a blind pouch, of considerable size when viewed in relation to the parts; whilst the appearance of the valve was very similar to that of one of the semi-lunar valves at the commencement of the aorta or pulmonary artery.

In another case there was a stricture of the bulb, caused by adventitious membrane, presenting towards the bladder a semi-lunated edge, where the false membrane formed a species of valve, covering a cæcal passage half an inch long, looking backwards, or towards the bladder. This had induced considerable mischief in the bladder and kidneys; the latter contained numerous cysts, and their pelves were excessively dilated, the whole substance, with the capsules, being hardened and thickened. The former was much enlarged and hypertrophied, and contained within its parietes several deep cysts containing pus. These cysts neither communicated with the interior nor exterior of the organ. No matter could be detected in the urine, although this fluid was albuminous. The prostate gland also was larger than usual.

These cases explain points connected with extreme retention of urine, which have never been properly accounted for, and the reasons for which, as advanced from time to time by writers upon the subject, although maintained for want of better, were neither satisfactory nor conclusive; they always appeared to me to require further elucidation; and this, I believe, is afforded by what we are now considering. Let us again briefly revert to the first case. The patient had complete retention of urine; nothing would pass. His symptoms were so urgent as to demand operation. His bladder was tapped, with instant relief, and accompanied apparently with relaxation of the stricture, as an instrument could subsequently be passed without much difficulty, and the patient was enabled to micturate, although in a small stream. Now, this yielding of the stricture is thus explained by Sir B. Brodie, who, in alluding to what takes place when the urethra gives way, observes,—"There is no more straining, and the spasm of the stricture, no longer excited by the pressure behind, becomes relaxed, so as to allow some of the urine to flow by the natural channel." This implies that the retention of urine has depended upon muscular contraction, that it is the undue action of the muscles of the part which prevents the escape even of a drop of urine, this contraction persisting for days, even to the death of the patient, notwithstanding his violent and incontrollable efforts. But where the stricture has resulted from acute inflammation and the deposit of a false membrane,—which, I believe, is much more frequent than is usually admitted,—this complete retention and subsequent phenomena may be explained by what was found in the cases just related. I allude to the valve with its free margin directed towards the bladder. It is not an isolated fact; I have met with it in three cases within the last two or three months: one in the case just related, where the retention was so complete as to require operation, the other two in which the patients died of some other disease. In these cases, retention of urine may be considered as purely mechanical. The false membrane presenting its valve, the urine insinuates itself between the valve and the mucous membrane, raises it up, and so closes the canal; and the greater the stress or pressure from behind, the more is the valve raised up, and the more complete is the occlosure of the canal. When by any means this pressure is removed, the valve drops down, the canal again becomes pervious, and so allows the urine to flow; and so it will continue to do, as long as no forced nor unnatural impulse is given to the urine. The degree of retention in such cases must doubtless depend upon the size of this valve: where the latter is small, it may merely produce impediment; and this was probably the case in the preparation before you, wherein the valve is small compared with that in which complete retention took place; but we can readily understand that in course of time, if left to itself, it would have attained ample size to have produced the most baneful results. Equally inconclusive is the usual explanation, when applied to the same train of phenomena occurring in what have hitherto been deemed the common and ordinary form of permanent stricture. It may reasonably be doubted, in cases of long standing, wherein the state of the surrounding parts is such as to constitute a cartilaginous, or even indurated stricture, whether the muscles surrounding the actual seat of disease would have sufficient power to produce decided closure of the canal. Where the mucous membrane is thickened, the submucous cellular tissue and even the spongy tissue so loaded with lymph as to be converted into the indurated mass in which we find it, the organic muscular fibres could not and would not act: they might at other parts of the canal, but they would not at the seat of disease. Retention therefore must be due to the contraction of the voluntary muscles surrounding the whole mass; and if so, it is, I believe, the only instance wherein voluntary muscular fibre is capable of exerting this continuous and uninterrupted contraction for so long a period. We have, however, another explanation—we may ascribe the retention of urine in these, as in the other cases, to mechanical rather than to vital contraction. The bladder acting with more than usual violence upon its contents, the force thus exerted upon the urine is reflected from the urine upon the neck of the bladder, and so on to the urethra; hence, as the latter becomes over-excited and distended, the strictured portion is drawn upon, and still more contracted, and hence complete occlosure takes place; and this the more readily that the greater the efforts or force exerted upon the fluid, the greater the amount of contraction. These cases mostly occur when, from some cause or other, a more than ordinary quantity of urine has been allowed to accumulate in the bladder before any effort has been made to expel it; so that from the very onset such efforts have been forced and unnatural. Hence we can readily understand that when the urethra has given way, or an operation has been performed, the contraction of the bladder upon the urine is more natural, the reflected action upon the neck of the bladder is diminished, and there is less distention of the urethra behind the stricture, the traction upon which is consequently diminished, and it therefore permits the urine to flow. Very little explanation will suffice to make this point clear to you. In cases of this description, the stricture is a mass of induration of greater or less extent, seated at a given point upon an elastic and extensible canal, which in its normal condition is loosely attached to the structures beneath, but, under existing circumstances, becoming implicated in, and consequently firmly attached to, this mass of induration; so that the stricture is no longer an isolated independent body, but part of this tube, being more or less a fixed point, having the loose extensible tube in front as well as between it and the bladder, but lined, recollect, by the same membrane, which, whilst loosely attached at other parts, is here intimately blended with, and adherent to, the altered structures beneath. This mass is not merely deposited around the urethra, but as the coagulable lymph becomes effused in the subjacent structures it gradually compresses the membrane of the urethra and pushes it inwards towards the interior of the canal, forming convex projections in that direction, of greater or less extent, with consequent and relative obliteration of the canal. If the urethra in front of the stricture were as solid and fixed as the stricture itself, it is probable that we should not have these cases of complete and unsubduable retention of urine; but, in the existing order of things, as the urethra between the bladder and stricture becomes distended with urine with greater force than ordinary, and the urine enters this part by an orifice of much greater extent than that of the exit afforded by the stricture; and, moreover, as fresh urine is unceasingly pressed forward by the violent efforts at expulsion exerted by the bladder, &c., behind; as a matter of course, the urethra behind the stricture must become more or less dilated, and in its dilatation draw upon the urethra in front. Now, if the urethra in front of the stricture were as solid and fixed as the stricture itself, the force exerted by the dilatation of the urethra between it and the bladder, by acting equally in all directions from within outwards, upon the cylindrical tube, would tend to expand the vesical opening of the stricture, and thus favour the passage of urine. And, probably, if the surface of the stricture were uniform and flat, instead of convex, the retention would not be so complete. But as it is, the convexity serves as a fulcrum or pulley to convey the force exerted by the distention of the urethra behind, to the most remote point of consolidation or adhesion in front, producing a kind of double action upon the part. For the sound urethra in front offering no resistance, whilst the vesical orifice of the stricture is dilated by the traction exerted upon it, the same traction draws the anterior portion of the stricture together, approximates the most prominent convexities or projections, and, the greater the force, distention, or pressure exerted behind, the closer and firmer will be this approximation in front. When by any means this pressure is relieved, whether by subduing the vesical efforts by opium, iron, or by operation, or by the urethra giving way, this forced contraction subsides, the parts assume their wonted position, the canal is restored, and hence the urine is allowed to flow. This, I believe, is the correct explanation of those phenomena occurring in permanent strictures of the form under consideration. We can scarcely understand how parts disorganized to the extent that these are can be endowed with such vital contractility as to justify our ascribing such complete retention of urine to irritation or spasm; we may also feel sceptical as to the capability of the delicate muscular fibre of the urethra to resist the powers opposed to it; but when we look upon the case as one of a given force acting upon and resisting itself, our surprise and doubt at once subside.

Another cause of retention of urine, although probably not so urgent an one as the two preceding, is the accumulation of viscid mucus, which, plugging up the neck of the bladder and constricted portion of the urethra, completely prevents the escape of the fluid. Although I had frequently seen this mucus produce inconvenience, I had no idea that it could present such a complete obstacle until a few weeks since. A preparation was sent to me, taken from a man who had for some years suffered from symptoms of stricture. I was anxious to ascertain whether the impediment to micturition had arisen from spasm or actual organic obstruction—whether, in fact, the causes which prevailed during life persisted in death. Accordingly I suspended the bladder in a frame, so that the penis hung down; and, making a hole at the fundus of the bladder, poured water in, at first slowly, as the urine would enter from the ureters, until the bladder was well distended, but not a drop escaped per urethram. I was then anxious to ascertain whether the obstacle was capable of resisting greater force. Accordingly I applied the bladder to the tap of a cistern, introducing the nozzle of the tap into the hole in the bladder, and tying it firmly round; I then gradually increased the amount of pressure by turning the tap: still no water escaped. I now thought it would be interesting to ascertain the precise spot of obstruction, and accordingly I cut off the penis, portion by portion of an inch in length: still no water escaped, although I had reached the front [illegible] the prostate gland; here, however, I observed some thick viscid mucus protruding through the urethra: I withdrew it by forceps, and the water then gushed out in a full stream. In the second case of permanent stricture to which I lately alluded, we found that the bladder had undergone certain changes resulting from the obstruction of the urethral canal. These changes were abscess in the coats of the viscus, with thickening of the latter. Did time permit, I would enter more in detail upon the results of permanent strictures of the urethra; but as only a few minutes remain, I must confine what I have to say to some short remarks upon thickening of the bladder, and that form called a columnar bladder. It is commonly stated that the organ, being obliged to act more powerfully in consequence of the impediment which it has to overcome, becomes diminished in size, its walls at the same time being thickened from hypertrophy of its muscular coat, which is so much developed as to present itself in the form of strong bands or columns under the mucous membrane, forming well-marked projections. This, I believe, is incorrect. I have examined several thickened bladders microscopically, and I have found that the thickening of the coats, as well as the columnar appearance of the inner surface, is due, not so much to the muscular as to the cellular coat of the viscus; that in point of fact these columns or projections are not muscular, but composed for the most part of elastic cellular tissue. The contraction of the bladder only obtains as a general rule at a comparatively early stage of the complaint; for we find, when the obstruction has existed for any length of time, that the bladder, though thickened, is dilated instead of contracted; and from what Mr. Hogg and I have observed, I am led to the conclusion that there is only a certain degree of hypertrophy of muscular fibre consistent with the persistence of that fibre as muscular tissue; that beyond this point it appears to lose its original character, and to pass into a state of fatty degeneration. I will not attempt to enter upon the question as to whether this conversion of tissue into fat-globules is a conservative or destructive process—whether it is to prolong life, or to assimilate the body whilst living to those changes which it undergoes in its abode of death. Is it a process of nutrition, or is it a process of decay? Observation and reasoning would point to the latter. I would, however, venture to express the hope that the matter may engage the attention of those well versed in animal chemistry, that they may enlighten us thereon, and show whether the fat-globules of fatty degeneration are identical in chemical composition with those of the fat of nutrition, or whether they merely possess their physical appearances.

I have now to express my warmest acknowledgments to you, Sir, your valued predecessor, Dr. Murphy, and the rest of the Fellows of this Society, for the patience and attention which you have bestowed upon me during the delivery of these lectures. I sincerely wish they were more deserving of your approbation. Such as they are, however, I trust that you will consider them as steps in the right direction, and that they may stimulate further investigations into the important subjects of which they profess to treat.

OPERATIONS FOR THE REMOVAL OF CANCER.

A Clinical Lecture delivered at St. Thomas's Hospital.

By JOHN SIMON, F.R.S.,

ONE OF THE SURGICAL STAFF OF THAT HOSPITAL, AND OFFICER OF HEALTH TO THE CITY OF LONDON.

Gentlemen,—Immediately after lecture today, I have to operate for sarcocele on a patient whom I admitted into Abraham's ward a fortnight ago. I expect to find, on subsequent examination of his tumour, those structural elements which are accounted characteristic of malignant disease. I therefore avail myself of this occasion to review with you the general principles on which I habitually act, in operating, or in refusing to operate, for the removal of cancerous tumours. These principles are as direct deductions as I can draw from a pathological consideration of the disease: and, therefore, most that I have now to say to you is but a clinical commentary on the doctrine of cancer, which I have given you in my course of General Pathology.

The obvious standard to which one must look in every case for the sanction of surgical interference with any cancerous tumour, is this; that the prospect of permanent, or at least of prolonged, relief shall be so great as clearly to outweigh the risk and severity of the operation.

It is in the application of this principle to particular cases, where we wish for its practical guidance, that our exercise of surgical judgment consists. For each individual case has to be studied on its own distinctive grounds.

The hope of advantage from surgical operation varies with two considerations—viz. (1) according to what hold the disease has obtained on the part first invaded, or on those in vascular connexion with it: (2) according to what amount there may be of constitutional tendency to reconstruct the disease.

I purpose bringing before you, with such detail as my time will allow, the chief points which deserve mention under these two heads. And first, with respect to the local tenure of the disease:—It may be considered a rule without exception, that an operation for cancer should not be undertaken except when there is every presumption that *a complete local recovery* will ensue—that the wound will advance healthily to a sound cicatrization. This presumption can be entertained only when the surgeon is quite confident of getting beyond the local limits of the growth. Nothing can justify cutting through lymphatic or venous cords, or cellular tissue, in which are the germs of the disease. In such cases, the track of the knife converts itself without delay into a cancerous sore. Under these circumstances the disease is said to "return in the wound." This is a quibble. The disease does not return, for it never was away. It simply continues in those textures from which the operator failed to remove it. To set about amputating a breast where the integuments are infiltrated and brawny; or exposing the surface of an encephaloid tumour (for instance, in the neck or groin) with uncertainty as to whether its deeper attachments may permit an entire removal; or cutting at the circumference of a cutaneous cancer with indistinct and indefinite limits,—would illustrate the *mala praxis* which this rule condemns. In all such cases of injudicious interference, the patient's condition is aggravated; his sufferings from the disease are needlessly increased, and the fatal result is accelerated.

Almost equally without exception is the rule, only to operate when one may reasonably believe that there are *no secondary deposits* (however small) in the lymph-glands or elsewhere; for, at whatever rate of increase the original disease was advancing, at just the same pace (since its origin is constitutional) will it continue in the secondary form. The cachexia simply transfers its manifestations of activity from the former site to the latter.

Very rarely indeed there may be found a solitary case in which this rule can be departed from with advantage to the patient. Occasionally I have seen a woman having the disease in her breast; where the cancerous process has been very gradual and slow, extending over three or four years; where the tumour, of moderate size, and occupying only part of the gland, has remained quite moveable on the deeper parts; where the mass at length has softened in the greater part of its substance, and the skin immediately over it has thinned and reddened; where ulceration has been imminent; and where, in a few weeks, there would be substituted for this quiescent condition a deep and painful ulcer, tending rapidly to exhaust life. Very rarely indeed, I say, have I seen a case of this chronic description, in which, the patient's health being apparently unimpaired, I have thought it proper to recommend removal of the primary disease, notwithstanding some slight enlargement of the axillary glands. I have known that the malady would afterwards continue in the axilla at the same rate as in the removed breast, but that rate would be slow; and meanwhile, perhaps for years, at the expense of an inconsiderable operation, the patient might be saved that excessive increase of suffering and greater imminence of danger which belong to the ulcerated condition.

Secondly.—The constitutional conditions, permissive or prohibitive of any cancer operation, are far more difficult to estimate than those just adverted to, but they are of no inferior importance. It cannot be denied that every cancerous growth attests a constitutional malady as its source; that the local ailment is but the product of a general travail in the system; and that if such a tumour be removed while in process of increase, it is the immediate tendency of Nature to establish a similar growth in some other part of the body. But while this is true, I believe, in respect of every cancerous growth whatsoever, it is true in different degrees. The intensity and rootedness of the constitutional malady vary for each case; and, in the exact ratio of this variation, varies also the tendency to the reproduction of the disease, if removed by surgical operation. It is therefore highly requisite that you should measure accurately the *degree of cancerous cachexia* in any case coming under your treatment; and I will now mention to you some considerations by which your judgment in this matter may be guided. The rate of growth, the inherited liability to the disease, the species of cancerous growth, and the probable share taken by local causes in its production—these are the four points to which your inquiry may chiefly direct itself.

1. The highest importance must be attached, I think, to the *rate of increase*. Sometimes this is so rapid that the disease might almost be termed an acute one. Such is especially apt to be the case with the encephaloid variety of cancer, which therefore attests an extreme degree of the fatal diathesis. Often, in these cases, a sensible progress is made from day to day. Last spring, in private practice, I saw one of the most striking

illustrations of this rapid increase which have ever fallen under my notice. The subject was a young lady, below puberty; the form of disease, fungus hæmatodes; its site, the outside of the knee-joint. The entire course of morbid phenomena, from the earliest slight uneasiness to death, was run in five months, during the first two of which there was no perceptible swelling; and the utmost bulk of the tumour (nearly a foot in diameter, with immense protrusion of fungus) was reached in about *two months* from the first appearance of enlargement. It was at this period that I saw the case in consultation, and I considered the enormous rapidity of growth to be in itself a sufficient reason for pronouncing against amputation of the limb. The constitution which had evolved this vast formation in so short a period, would have rebuilt with equal velocity whatever surgery could remove.

It is not only with encephaloid tumours that we witness this sudden growth. Last autumn I was requested to see a lady suffering with disease of the mamma, and found her in the following state:—From the sternum to the scapula, over the whole left side of the chest, the integuments were quite hard; the breast itself was like marble, large and prominent, with the skin red and shining; there were scattered subcutaneous tubercles; the glands above the clavicle were large and hard; the axilla was stuffed with deposit; the entire arm tense with œdema. The opposite side showed the small shrivelled breast of a spare woman of sixty. Now that disease was the work of *five weeks*. In about three more she was dead. For a year she had had on the left side a small, hard, moveable tumour, to which little attention had been paid; and it was not till this acute infiltrative process set in, almost like an act of inflammation, that the serious disease was suspected. Five weeks before I saw her, the little moveable lump in the breast was her only ailment; it was probably scirrhus in a quiescent state; and the diathesis finally underwent some sudden and remarkable modification.

It must be obvious to you, on a moment's reflection, that no surgical operation can ever be advantageous where the disease is developing itself at such a pace as I have illustrated to you in these two cases. Such a proceeding would be almost as though, at the commencement of rheumatic fever, one were to amputate the first limb in which synovial inflammation had arisen.

Speaking generally, I may say that your chance of doing good by the removal of a cancerous tumour, as compared with others of the same species, will be in inverse proportion to the rate at which the tumour has grown; that this rate measures the characteristic diathesis, and consequently indicates how soon and how certainly you may anticipate your patient's relapse into a condition of irremediable disease.

2. The amount of *inherited liability* to cancer which your patient may be supposed to possess is an important element in your prognosis. Cancer is supposed to be inherited in about a seventh part of the cases where it occurs. Sixteen months ago I was consulted by an unmarried lady, aged thirty-seven, having in her left breast a considerable scirrhus tumour, of recent and rapid growth, attended with no pain, but with slight enlargement of the axillary glands. This lady's mother had just died of cancer of the womb; her maternal grandmother had been the victim of scirrhus in the breast; her paternal grandmother had died of the same disease: an uncle on the mother's side had also suffered some form of malignant disease in the abdomen. I expressed the strongest opinion against the chance of doing good by operation. The lady had numerous connexions in our profession, and eminent opinions were taken on her case. They differed from mine, and the result was, that her friends urgently pressed removal of the breast. This I was begged to perform; and after reiterating my opinion as to the probable result, I complied with their wishes that I should carry into effect the recommendation of the other surgeons who had been consulted, and should amputate the breast without disturbing the axilla. Within a month of the operation being performed the lady left town, in seemingly good condition, with the wound perfectly cicatrized. For three or four months alone was there an appearance of respite; the opposite breast then began to enlarge, and the integument over it to become brawny; the arm of the first affected side became anasarcous, showing an advanced disease of the axillary lymph-glands, and she speedily reached a condition in which her remains of life could only be made endurable to her by the profusest employment of opium.

You may remember, four or five months ago, seeing me remove from the parotid of a woman, in Clinical ward, a colloid tumour, about as large as a walnut. While she was under treatment one of her children was dying, at the age of seven, with encephaloid disease of the eye. Had an operation been contemplated for the latter case, the prospect of success might justly have been considered smaller than usual by reason of the mother's history.

3. The *form of cancer*, in relation to its kind and site, is a consideration of great importance for measuring the likehood of return. Some forms are never known not to recur. This is the case, I believe, with encephaloid of the globe of the eye. I doubt if there be any authenticated case of its successful extirpation*. It is almost equally the case with encephaloid of the testis,

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* Mr. Dixon, the very able Surgeon of the Royal Ophthalmic Hospital, who for the last twenty years has probably seen at least as much eye-disease as any man in Europe, strongly confirms this view. Sometimes (he says) though very rarely, success appeared to attend such operations performed many years ago. His later experience assures him that these exceptional results were simply an expression of the former less accurate diagnosis of morbid products. The following illustration from his pen is valuable:—"An infant was recently brought to me with apparently encephaloid disease of the retina: fundus of eye occupied by a yellowish mass, &c.; gradually it advanced forwards, pushed the lens against the cornea, which gave way. Then, instead of a fungating mass protruding, the eye collapsed, and is now a mere button. Twelve years ago, I am quite sure this eyeball would have been extirpated, and the strumous deposit pronounced to be medullary fungus. We should then have had a *successful case!*"

especially in young children. Indeed in them, generally, the removal of encephaloid tumours (the only form of cancer habitual to early life) is quite a desperate proceeding.

A distinction, under this head, which I think of the utmost practical value, is that between the *desquamating cancers* which affect skin or mucous membrane, and those other forms which *pervade the parenchyma* of some solid organ. Cases of the latter class—cases in which massive cancer-growths, whether scirrhous or encephaloid have developed themselves (usually in solid organs, as bone, testis, or breast) give incomparably the worst results after operation.

We are not yet in a condition to estimate statistically the utility of removing scirrhous breasts, but I strongly incline to believe that the return of the disease is more certain and more speedy than is generally supposed. The diagnosis of malignant growths from many diseases to which they have a general resemblance has not, even yet, become infallible; till very recently, it was so imperfect as to be quite useless for statistical purposes. I am certain that in many of the cases in which scirrhus of the breast is reported to have been cured by surgical operation, the diagnosis has been at fault.

Till a comparatively recent date, the solid growths of *serocystic disease* were undistinguished from malignant fungus; and probably they are still at times confounded by the surgeon. Within the last few days I have examined a tumour, removed by a competent surgeon as scirrhus of the breast, where the mass consisted of *dilated ducts*, containing such materials as are common in cystic disease, together *with interstitial thickening*, apparently of an inflammatory kind. A few months ago I discovered a similar tumour accidentally, in the dead-house, and thought at the time it might easily have been mistaken for scirrhus. Occasionally, I believe that I have recognised the same condition in the living breast, supposed to be suffering from carcinoma, though, as I have never counselled an operation in such cases, I have not been able to verify my diagnosis by anatomical examination. Still more frequent material for erroneous diagnosis is given by that *chronic mammary tumour*, which consists in a partial or adjunctive hypertrophy of glandular structure, and which, from its general physical characters, must often have been confounded with scirrhus.

On numerous occasions I have been consulted with a view to removal of a breast, under the impression of its being affected with scirrhus, where I have been able to satisfy myself that the patient has been suffering from one or other of these comparatively unimportant diseases—either that the tumour has been of the hypertrophic kind last adverted to, or that it has consisted in some trifling modification of normal structure, cystic or inflammatory. Now, obviously, if such cases are operated on, and the results classified with those of scirrhus-extirpation, the statistics as regards the return of cancer after operation, will be rendered far too favourable by this admixture of error. When our profession has perfected its means of diagnosis, so that all cases of operation are reported under their true heads, I suspect it will prove a very rare event for cancer not to revisit a patient after its removal from the breast.

This final unsuccess of operation is even more certain in respect of malignant disease in bone and in the testis; and it may, I think, be stated generally to belong in a very marked degree to all those cases in which cancer developes itself by infiltration into the substance of solid organs. In this class of cases, accordingly, I am very loth to recommend the removal of the disease, if it would involve any considerable mutilation, or any other proceeding of much immediate risk to life.

Trifling operations of the kind I do not scruple to perform; for instance, there died in my ward last autumn a man for whom, two years previously, I had removed the thumb on account of encephaloid disease, which had originated within the metacarpal bone. The local cure was complete; but after eighteen months he began to fail in health, and died at last with cancer-growths in the lung and brain. I need hardly tell you that what was a proper operation where so small a portion of the body had to be removed, and where the immediate risk of a fatal result was quite insignificant, would not have been equally so if these conditions had been different—if, for instance, the femur had been the seat of the same disease, and the question of mutilation had related to an entire extremity.

The form of cancer in which I operate not unwillingly, and at times undertake operations of some magnitude, is the *desquamating or epithelial* kind, as it affects the tegumentary tissues, provided always that the glands be uncontaminated, and the general health sound.

This disease you have seen as a circumscribed affection of the skin, having for the most part an obviously warty character, but differing from ordinary warts and condylomata, not only in the deeper hold it has of the skin (so that you find something more than mere outgrowth from the surface) but likewise in the ulceration which is admixed with it. Often, indeed, the truest description of such a disease might be couched in what seems a pathological paradox, and you might almost speak of it as an ulcer which widens itself by the process of growth.

I dare say you recollect a striking illustration of this character in the person of an old woman who was under my care last year in Clinical ward, with an epithelial cancer on the shin. It was sufficiently vascular for the warty character to be less marked than usual; but I was able to point out to you from time to time how the ulcer widened itself without any loss of its granulating character,—widened itself by the conversion of its margin into hard granulations; whereas, I need hardly tell you, an ordinary ulcer widens itself by the destruction and deliquescence of the textures at its circumference.

In the section of such a cancer (particularly when it is of skin, with fat beneath) you may verify what I have said,—how much more it is than a mere warty outgrowth from the surface. You see the warty surface based on more or less considerable thickening of tissue, which on either side is continuous with healthy cutis; and you see the deep side of this thickened texture bulging in rounded lobules towards the subjacent fat. It is, in fact, a tumour, occupying the site of a patch of skin, lobulated on its deeper aspect, and presenting exteriorly its desquamating ulcerous surface.

This form of cancer, as observed in the tegumentary textures, consists chiefly of elements indistinguishable from the normal scales of skin or mucous membrane, and it might, therefore, in great part be considered a hypertrophic growth of the tissue on which it is grafted. One habitually finds in it, however, an arrangement of these elements which is different from the normal, and which I have just had an opportunity of showing you in the structure of a cancer removed by me last Monday from the lower lip of a man in Abraham's ward. It is as follows:—When you press parts of the tumour, there start from the section here and there, minute vermiform particles, of cheesy consistence, which you may detach with the point of a needle, tear into still smaller fragments, and examine under the microscope. The appearance there is very characteristic; you might fancy you were looking at some lightly-drawn diagram of a multi-central fibrous tumour, such as you know in the uterus. You seem to see an external fibrous tissue in parallel turns, binding together smaller spheroids of various sizes, each with its own concentric arrangement. These primary spheroids look like the simple wisping of hay with which you would begin to imitate a bird's-nest, and are held close, in rounded clusters (two, three, or more together) by a similar wisp environing them. On careful examination, you find that the appearance of fibres is fallacious; it is due to epithelial scales, attenuated so as to simulate fibres, and woven closely together in the manner I have described. It seems a concentric arrangement of these scales, around some material different from themselves, for the inward substance is more transparent; and I have often been led to speculate, though hitherto without being able to satisfy myself, whether the centres of this peculiar hypertrophy are the specific germs of the malignant disease.

These bodies are not peculiar to epithelial cancer of the external integument, but attend the same disease of mucous membrane. My earliest diagram of the appearance (1845) was obtained from the œsophagus of an old lady who died under my care, with epithelial cancer of that tube, rendering it impervious. In the discharge from desquamating cancerous ulcers you will commonly find these peculiar bodies admixed with other products of the disease.

While speaking to you of the characters of epithelial cancer, I may mention that it appears at times to begin as a subcutaneous tubercle, simulating the characters of an ordinary sebaceous tumour, and reaching a noticeable size before destruction of the skin. Presently ulceration ensues; the accumulated epithelium is discharged, just as it might be from a common cutaneous cyst; and then the surface gradually assumes the characters I have described to you. In surgical books, mention is made of sebaceous tumours occasionally "taking on a malignant action." I suspect that these cases may have been such as I am now speaking of—cases of epithelial cancer beginning subcutaneously, perhaps in a follicle. I shall presently allude to an instance of this kind which came under my care in Clinical ward; the growth, when first seen, was taken for an ordinary follicular tumour of the cheek, undergoing suppuration.

[*To be Continued.*]

REPORTS OF CASES FROM THE OUT-PATIENT DEPARTMENT OF THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, AT BROMPTON.

WITH CLINICAL REMARKS.

By Richard Quain, M.D.,

Fellow of the Royal College of Physicians, and Assistant-Physician to the Hospital.

I. Cases of Arrested Pulmonary Phthisis.

Numerous cases, useful for study and for instruction, present themselves amongst the out-patients of the Brompton Hospital. They comprise chiefly examples illustrative of the diseases of the organs of respiration and circulation. Preserving, as I do, notes of all these cases, it seemed to me that some of them might with advantage be brought before the profession; and I therefore propose, in this and following papers, to relate as briefly as may be consistent with clearness, and to comment on the histories of some of the more interesting cases. I shall commence with phthisis, and shall first describe examples in which treatment appeared to be remarkably successful in arresting the further progress of that disease. The consideration of such cases cannot fail to be useful now that we begin to acquire some real knowledge of the nature of the malady, and that we possess agents which have an unquestionable control over its progress. The term arrest of the disease, which has come into general use, simply means that such a state of constitutional health has been secured as will prevent for the time being, the further deposition of tubercle in the lungs. Few will deny that this desirable object is now very frequently accomplished. Next to this, however, follows another important question: What becomes of the deposit which has already taken place, and how far can the lungs recover from its effects? Not many are prepared with answers to this question. Those, however, who have had opportunities, and used them for the study of the question, have found answers far from unsatisfactory. Thirdly, the disease being arrested, and the lungs being so spared as to be still sufficient for the functions of life, how far are they free from a liability to a fresh attack? Extended opportunities for investigating this important point, owing to a variety of circumstances, do not fall to the lot of many. As the following cases tend materially to illustrate this and the preceding questions, I feel that they will not be unacceptable to the profession.

Case 1. *Tuberculous Deposition in both Lungs; Formation of a Cavity in one; Arrest of the Disease; Progress of Cicatrization; Death by another Disease; Appearances found in the Lungs.*

The lungs in this remarkable case were presented to the Pathological Society of London, and full details are published in their *Transactions* for the last year. I shall therefore now give but a summary of its leading features.

A female in her thirteenth year became an out-patient of the hospital in May, 1848. She had suffered, during the preceding winter, from impaired health, cough, and the ordinary symptoms of consumption. The deaths of two sisters by this malady show that she was predisposed to the disease. Marked dulness, bronchial voice, and breath-sound at the apex of the left lung, gave proof of the presence of much tuberculous deposit there; a feeble inspiratory, and a loud expiratory, murmur at the apex of the right lung, showed the presence of tuberculous deposit, but to a limited extent, in this situation. She had been unable to take cod-liver oil in its ordinary form. A mixture containing this material, combined with liquor potassæ, and formed into an emulsion, was prescribed and well borne. A cough syrup was also prescribed, and some mild counter-irritation.

In the following August, softening of the tuberculous deposit in the left lung had commenced. She had profuse hæmoptysis, and subsequently abundant puriform expectoration. Crepitation was at this time audible over the former seat of dulness; and shortly after cavernous breathing indicated the presence of a cavity. The patient's state was at this time unpromising. The cod-liver oil was increased in quantity, symptoms were treated as they arose, and extreme care was taken of her during the winter. In December she had decidedly improved in health. She continued to improve slowly till August, (1849,) when it is noted that "there is flattening of the chest over the apex of the left lung; the respiration though cavernous, is not loud; pectoriloquy is distinct; respiration at the right apex is somewhat puerile." The improvement during the winter continued. She took the cod-liver oil, and an infusion of gentian with soda and hydrocyanic acid, when the stomach was out of order. Thus favourably she went on, and in the following October she came to the hospital, looking remarkably well, having grown tall and stout. She said that she had been for some time in the country. She had scarcely any cough, no expectoration, was free from suffering, and spent her time much as other girls of her age. An examination of the chest showed remarkable contraction over the summit of the left lung, the mobility greatly diminished, being in the proportion of nine to thirty-two of the right apex. The breath-sound under the left clavicle had a sharp, whiffing character, accompanied by slight crepitus; the dulness above the spine of the scapula was more marked, and respiration was scarcely audible there; the right lung was traced, extending to the left border of the sternum, and over this lung the respiration generally had a puerile or supplementary character. The most remarkable phenomenon, however, was connected with the heart's action. This organ was drawn upwards and inwards, affording an impulse which was chiefly felt between the cartilages of the second and fourth left ribs. The treatment was continued during the winter, and her improvement was progressive. In the following March, during the prevalence of influenza, she was seized with vomiting and purging, and sank rapidly on the fourth day of the attack,

The post-mortem examination made by Mr. Harris, of Clapham, who had watched the case with great interest, showed appearances entirely corresponding with the facts ascertained during life. As these appearances are fully described in the *Transactions* referred to above, I shall give but a short summary of them here.

1. Nearly the whole of the upper lobe of the left lung was occupied by a cavity now reduced to the size of a large walnut, lined by a distinct membrane, and surrounded by condensed walls. This lobe was very greatly contracted in size. A considerable portion of the lower lobe was permeable to air. It contained some points of old tuberculous deposit.

2. The right lung was large, and extended across the sternum. Its apex was puckered, and throughout its substance were some points of old tuberculous deposit. There was *no appearance whatever in either lung of recently deposited tubercle.*

The space rendered vacant by the contraction of the left lung around the cavity, was occupied by the heart, which was drawn upwards and to the left side, and by the wall of the apex of the chest, which had fallen inwards and downwards. The mucous membrane of the alimentary canal was congested; there was no material disease of any other organ.

Case 2. *Tuberculous Deposition in both lungs; Softening of the Deposit in one; (Formation of a Cavity?) Progress of Cicatrization; no Re-appearance of Disease after nearly two years.*

J. T———, an engine-maker, aged thirty-five, employed at Messrs. Maudsley's factory, became an out-patient of the hospital in January 1849. He states that he is a single man, living well, in a healthy situation, and aware of no cause for his illness save exposure to alternate "heats and colds." He has had a cough for eight months; he has no predisposition to consumption; he has lost flesh (weighs at present ten stone five pounds and three-quarters) and strength, and has not been able to work for nearly five months. He spits a yellow matter, and has never had hæmoptysis. He has suffered from indigestion. There is "dulness, coarse crepitus, bronchophony, and bronchial breathing under the left clavicle. Under the right there is loud prolonged expiration, but no apparent dulness." Cod-liver oil in drachm doses, and a syrup containing squills and morphia were prescribed. A vesicating solution of iodine was applied under the left collar bone. Subsequently the cod-liver oil was given in increased doses, and pills containing conium and morphia (vice the syrup) were, with counter-irritation, continued during the spring and summer, and he spent some months in the country. At the close of June (1849) he presented himself, looking and feeling well (his weight eleven stone and half a pound.) "He is free from cough, save a little in the morning, and he then expectorates a few portions of yellow phlegm; during the day, if there be any, it is dark-coloured. There is now flattening under the left collar-bone, and dulness. The broncophony continues, but there is no crepitation. At the right side the expectoration continues loud."

In August the report is—"He is fully employed at his work, which causes him to perspire profusely. His weight is now reduced to ten stone two pounds and a half, but he is very well."

In November, I find that, "feeling the work too much for him, he has been for a few weeks in the country. Since his return to work he has had an increase of cough, slight spitting of blood, and now spits some greenish matter. The physical signs remain much the same at the left side; at the right the breath-sound has more of a tubular character, and there is dulness." His weight is ten stone nine pounds. He has throughout continued the oil, the pills, and counter-irritation. He improved again, and continued to do well during the winter, and following summer, (1850,) part of which he spent in the country. I saw him again in the following March, (1851,) when he informed me that he had been quite free from cough, except he took a slight cold, for several months; that he had been at full work daily from six o'clock in the morning till eight at night. His weight was eleven stone four pounds. There was flattening beneath both clavicles, and loud prolonged expiratory murmur. He had continued the oil from time to time during the winter.

In January, 1852, I saw him again. He had continued his work, save when interrupted by the effects of a fall. He now had to complain of some dyspepsia, flatulence, and pain in his left side; he had slight cough and expectoration. I found the loud expiration still continued at both apices. Some simple remedies were prescribed, he soon got better, and I have heard within the last few days, from one of his fellow workmen, himself a case still more remarkable, that he is quite well.

CASE 3. *Tuberculous Deposit in both Lungs; more abundant in the right; Softening; Arrest of the Disease; Restoration of Health.*

A. B———, a nursemaid, twenty-six years of age, lately resident in Berkshire, which she has left in consequence of her illness, came to the hospital on July 6th, 1848. She states that she had previously obtained an order for admission to the Westminster Hospital, but could not be taken in, owing to the nature of her disease. She has suffered for nine months from cough, loss of flesh, and debility. She has had copious purulent expectoration, and frequent hæmoptysis. She knows no cause for her illness, but her mother and a brother died of consumption. At present the cough is distressing; she is thin, her expression hectic; she spits much yellow matter; her breathing is short and quick, her pulse 110; she sweats at night, and has all the symptoms of phthisis. She has leucorrhœa, and her menstrual functions are irregular. Her digestion is pretty good.

"It is not easy to examine the right apex of the chest, as it presents a raw blistered surface; there is, however, loud coarse crepitation, and cavernous-like respiration. At the left apex, the respiratory murmur is very loud and prolonged." Cod-liver oil and some cough pills were prescribed. At a subsequent visit, the blister being healed, an examination showed that there was dulness, muco-crepitation, with diffused bronchial breathing, at the right apex. In September, it is noted that "her health has much improved the menstrual function is more regular, the coarse crepitation is much less, and the voice is very resonant below the right clavicle." She had continued the oil in doses of three drachms three times daily.

At the end of October she remarks that she "tears her clothes, she gets so stout." She weighed, when first she came, six stone ten and a half pounds; her weight now is seven stone five pounds.

In January (1849) it is noted that "she is doing well; she has lost all troublesome symptoms. There is flattening at the right apex, and this point is but little duller than the opposite side, where there is still loud expiration. At the right side, the inspiratory murmur seems to want penetration or diffusion; the expiration is loud and prolonged. There is no crepitus; the voice is resonant. On the deep inspiration following a cough, a peculiar creaking sound is heard."

She subsequently got a wetting, and had a severe cold, from which, however, she soon recovered, with but a temporary intermission of treatment.

At the end of the following May, I find that "she does her domestic work as well as ever she did in her life." In September it is noted that she has taken cod-liver oil only once daily for the last two months, and that she now feels quite well; an examination showed flattening under the right clavicle; some dulness and bronchial voice; the expiratory murmur loud and prolonged at both apices.

In June, 1850, she came to the hospital and stated that "she is, and had been, during the preceding winter, in a situation as a housemaid—that she has been well able to do all her work, and never had a cough, nor anything else the matter with her." It was found on examination, that the right apex moved slightly less than the left, and that it was somewhat duller, but only at the summit of the lung. Here too the expiration was still too loud, so also was the voice.

In the winter of 1851, she came again to the hospital. She was somewhat out of health, having had a long and anxious attendance on her mistress, who had recently died—an event which led to a breaking up of the establishment, and her loss of a situation. There was, however, no return of chest symptoms; she had some mild tonic medicine given to her. She obtained a situation in the same family, and called soon after to say that she was quite well.

CASE 4. *Tuberculous Deposition in both Lungs; Formation of a Cavity in one; Arrest of the Disease; Progress of Cicatrization; Present state of the patient.*

S. C——, a female school-assistant, twenty years of age, became an out-patient of the hospital on the 16th of April, 1849. She was much emaciated, extremely weak, breathless, and hectic-looking. She stated that her illness had commenced three years previously, with indigestion, sickness, and cough. The cough had since continued on and off, more or less severe. She had had spitting of blood frequently. She was not aware of any predisposition to consumption in her family, and knew of no cause for her illness; she had lived well, and been free from anxiety; she had had much medical advice. In addition to the symptoms above mentioned, she was, on admission, still suffering from gastrodynia; she had cough, especially at night; perspirations, and copious, clotted, dirty-yellow expectoration; pulse about 106; she had leucorrhœa, and her menses were irregular. Under the left clavicle there was dulness, flattening, cavernous breathing, pectoriloquy, and, after coughing, distinct gurgling. Under the right, inspiration and expiration had a whiffing character. Her weight was six stone eleven pounds. Cod-liver oil, in two-drachm doses, three times daily, and pills containing conium, ipecacuanha, and morphia, were prescribed. Iodine counter-irritation was applied beneath the left clavicle. Directions as to diet, avoiding exposure to cold, &c., were of course given in this as in all other cases. She continued without any very perceptible change for the four following months, and at the close of July it is stated: "She coughs rather more, suffers much from gastrodynia, and the oil (the light-coloured description) rises." The physical signs remained as before, save that there was rather more flattening beneath the left collar-bone. The oil was then omitted, and a mixture composed of infusion of gentian, with bicarbonate of soda and hydrocyanic acid, prescribed. In a week her digestion was so much improved that she was able to resume the oil, the deeper-coloured variety, which was then in use at the hospital. The note on October states, that she improves, but "thinks that the pale oil," which she had again resumed, "does not agree so well as the darker oil." During the remainder of this winter and the whole of the following summer she held her ground well, (taking the straw-coloured oil,) and began towards the end of the latter to lose her cough; her weight was seven stone two pounds. In the following December it is noted that she is not so well; her menses are too frequent, and in excess. The apex of the left side moves in the ratio of 8 to 24 of the right. Loud creaking, with some crepitus, is heard at left top. The gentian mixture, cod-liver oil, &c., were continued. In the following April (1851) she looked much better; she coughed only in the morning; her breathing was much improved; her pulse 90; her appetite good; her expectoration trifling, viscid, of a dark-yellow color; menstruation regular. An examination showed much flattening under the left collar-bone, and the heart beating as high as the second rib, and much towards the left; no crepitation, but a loud sonorous or creaking sound, chiefly with expiration. In the right supra-spinous fossa the expiratory murmur was very loud. During this summer she suffered several times from diarrhœa, which brought her very low on more than one occasion; still she kept her ground, and on going into the country in July quite recovered her flesh and strength.

On the 12th of April, 1852, this patient presented herself at the hospital, in apparently rude health; she stated that she had been in Gloucestershire until a few weeks previously, and now felt no inconvenience of any kind, save that her breath was short on much exertion. She had slight cough only occasionally, and without any expectoration. She had not taken any medicine for four months, and all her functions were now regularly performed. An examination of the chest showed still further falling in of the apex of the left side. In this situation there was the same dulness on percussion, and a marked *bruit de pot fêlé*. There existed the same creaking sound with expiration, but no crepitation, and scarcely any voice was heard in this situation. The heart was beating as high as formerly. The respiratory murmur was heard over an extended surface at the base of this lung, the expiratory sound being loud. There was considerable resonance on percussion over the whole of the right lung, which extended towards the left side. The respiratory murmur was loud and supplementary; the expiratory sound was loud in the supra-spinous fossa. Her weight had increased to seven stone twelve pounds.

CASE 5. *Tuberculous Deposit in the right Lung; Arrest of further and Absorption of the previous Deposit; Disappearance of the Symptoms of Disease.*

W. S——, a tailor, twenty-two years of age, living well, but in a confined locality, came to the Hospital on the 5th of October, 1848. He is very tall, extremely thin, and debilitated. He says that he is not aware of the cause of his present illness, but he has lost an uncle and a sister in consumption. He has been unable to work for three months, but he has had a cough, which has been since, and is now worse, for several months previously. His breathing is short; he expectorates yellow phlegm; he has spat blood; and his pulse is over 100. There is dulness beneath right clavicle, bronchophony, and a loud, prolonged expiratory murmur. Cod-liver oil and some simple cough pills, with a croton-oil liniment as a counter-irritant, were prescribed. In June, he had a return of the hæmoptysis, and there was some doubtful crepitation heard at the right apex. He did well, however, without any interruption to the treatment. At the close of October it is stated, that he has obtained a situation as a town traveller, and can now walk ten miles daily; and when he came first to the Hospital, he required to be assisted in walking from the gate to the waiting-room, a distance of a few yards. In November, he suffered from dyspepsia, from eructations and confined bowels. A mixture, formed of infusion of chiretta, with an alkali, and some colocynth and blue pills, relieved him. In December, having resumed the oil, he states that the clear oil does not stay down so well as the darker-coloured variety. (I might here remark, that this and the preceding case, in which a like observation was made, are exceptions to the general rule. Indeed, it was extremely difficult to get the patients to take the brown or reddish oil,—so difficult indeed, that we ceased to use it, and consequently neither this nor the former patient had their wishes gratified in this respect; both, however, did well, as is here seen.)

In the beginning of January he expressed himself as feeling quite well, that he walked without fatigue from twelve to fourteen miles daily, and that he never coughed except he went into a hot room.

An examination showed some flattening at the right apex; no dulness; rather tubular expiration; the respiratory murmur at the left appeared weak. This man came to the hospital on the 31st of the following December—that is, after twelve months' interval—to give me, as he expressed, the pleasure of "seeing how well he had continued." He seemed, indeed, in excellent health, was in full employment, chiefly out of doors, often walking twenty miles a day, and never coughing except on taking cold.

The right subclavian space was flatter than the left; both apices moved well, neither being dull; the voice at the right was more resonant than at the left, and the expiration there was louder than natural. The respiration at the left top, as compared with the right, was weak.

CASE 6. *Tuberculous Deposit in the right Lung; Softening; Arrest of the Disease; Absorption of the Deposit; Restoration of Health.*

R. H——, a waiter at the Union Club, twenty-six years of age, came to the hospital on May 14th, 1849. He has lived in the club, and knows no cause for his illness, except that he suffers from sitting up at night, and is exposed to heats and currents of cold air. He is not predisposed to consumption; he had slight cough twelve months before, but for the last four months it has returned, and been worse. He has lost flesh and strength; spits greenish-yellow matter, but no blood. He feels tightness and oppression after eating; his heart's action is much excited; he sweats at night. Limited but decided dulness and crepitation under the right clavicle, are the physical signs recorded. Chiretta mixture, with an alkali and a cough syrup, with iodine vesication under the right clavicle, were prescribed. In a fortnight, his digestion had improved, and he commenced the use of cod-liver oil. He went into the country, and returned at the end of two months, having still continued the treatment, looking quite an altered person. He said he had no cough, nor anything else to complain of. On examination, I found the percussion note higher at the right, the inspiratory murmur weaker, and the expiratory louder, than at the left apex. He was allowed by the committee of the club to resume his duties, which to my knowledge he performed efficiently for more than a year. He also got married; he subsequently obtained a situation more suitable to himself and his wife; and on inquiry within the last few days, I find that he is perfectly well in health, and has two healthy children.

(To be continued.)

ON EXCISION OF THE HEAD OF THE THIGH-BONE.

By J. G. Guthrie, Esq., F.R.S.,

Late President of the Royal College of Surgeons of England.

The removal of the head of the thigh-bone from its place in the joint of the hip, after it has been separated in a measure from its attachments by disease of a scrofulous nature, is an operation which has been several times successfully performed, and life has been thereby preserved without much suffering or risk to the patient. In this case the head of the bone is found lying outside the cavity, from which it has been drawn by the action of the muscles. A step further must be taken, and this operation must some day be done in cases of fracture of the head or neck of this bone which are caused by an external wound—cases which have hitherto been invariably fatal, or in which life has been preserved by an amputation at the hip-joint.

The great advance which operative surgery has made within the last forty years, and the success which has followed the removal of the head of the humerus, the whole of the elbow and the ankle joints, render it imperative on surgeons of ability to endeavour to save life, without the performance of so formidable an operation as that of the removal of a whole limb; more particularly when the health is good and the parts sound, with the exception of those immediately injured.

The cases which seem more particularly favourable for this operation are those in which the head or neck of the bone is broken in military warfare by a musket-ball of small dimensions. Picture to yourselves a man lying with a small hole either before or behind in the thigh, no bleeding, no pain, nothing but an inability to move the limb, to stand upon it,—and think that he must inevitably die in a few weeks or months, worn out by continued pain and suffering, unless his thigh is amputated at the hip-joint, or he is relieved by the operation I insist upon ought first to be performed.

In order to do this operation with precision, the surgeon must make himself well-acquainted with the anatomy of the parts; and as the war in the Burman Empire may offer opportunities for its performance, a recapitulation of the essential points to be noticed may be useful. Two limbs should be injected so as to show the great arteries distinctly, and one should be dissected so that every part may be brought into view at once. That being done, attention should be directed to two points, the great trochanter, and the round head of the thigh-bone in its socket, which is directly below and a little internal to the anterior superior spinous process of the ilium.

When the thigh is bent in the dissected limb, the head of the bone will be seen rolling in the socket very distinctly; and in order to lay it bare for removal, the muscles, &c. around it must be divided. The first, on the anterior and outer part, is the tensor vaginæ femoris; this should be divided; outside this the glutæus medius must be cut, going to be inserted into the upper and outer part of the top of the great trochanter; deeper and between these two last, lies the glutæus minimus, winding forwards to be inserted into the anterior portion of the same part. Now, let the great glutæus muscle be cut through backwards in a curve, and the insertions of four muscles at one part—viz., the pit or fossa immediately behind the great trochanter—will be brought into view; these are the pyriformis, the gemelli, reckoned as one muscle, and the obturator externus and internus. They should all be cut through within half an inch from their insertion. The square muscle lying or placed immediately below them, and running from the ischium to the intertrochanteric line, is the quadratus femoris; it must be cut across. The thigh-bone will now be seen to roll on the least motion being given to it, in the socket, at the back part where the muscles were divided. The surgeon should now open into the joint with great care at this part, and by a gentle rotation of the knee inwards, the head of the thigh-bone will be readily dislocated downwards and outwards. The ligamentum teres, or the round ligament, as it is termed, although triangular at its origin, and the remainder of the capsular ligament, should now be divided by keeping the knife close to the bone, when everything will be exposed and ready for the application of the saw, in the particular cases alluded to, and to which this operation is most applicable.

Pause a moment, and view the parts before the saw is applied. Two strong muscles are inserted into the small trochanter by a common tendon, the iliacus internus and psoas magnus. This insertion should remain untouched if the fracture should not extend below the little trochanter. It is not always necessary to injure them, and they will be of great use afterwards, if the operation should prove successful. If the neck of the bone is broken through, rotating the thigh as I have directed may not assist much in dislocating its head. But then, the separation of the fractured parts may be readily completed, and the piece detached, when the head of the bone will be more easily removed. The sawing may be accomplished with the greatest ease by a small common saw, or by the improved chain saw, which will do good service. The arteries divided are all of small size. They are seen filled with red injection, yet they are so small as scarcely to be seen, and they could not give any trouble, for the wound is so large as to give easy access to every part, and readily admit of any bleeding vessel being tied without difficulty. The round ligament should be cut off close to the socket, and any portion of the capsular ligament and cartilaginous edge of the acetabulum which can be quickly removed with it, but no time should be unnecessarily lost in trying to remove the cartilaginous lining of the cavity itself, which will be gradually absorbed. The sawn end of the femur should now be brought up into the cavity, and kept there if possible by a supporting splint and bandage, with the hope that it may become rounded and adhere by a new-formed ligamentous structure, in the same manner as the end of the humerus does to the glenoid cavity of the scapula when similarly treated. The edges of the wound are then to be brought in apposition, and retained so by two or three sutures. The glutæus magnus slides over the trochanter major, having a bursa between them, and this part will not readily throw out granulations. The surgeon may therefore be less solicitous about the accuracy of the apposition of the edges at the under part, through which the discharge will more easily pass. The outside must however be supported by sticking-plaster and a compress, to prevent any bagging, and to keep all parts in contact.

The surgeon should now do the operation on the undissected limb. The first cut through the skin, integuments, and fascia lata, should be a curved one, beginning just over the inner edge of the tensor vaginæ femoris muscle, as shown on the other leg, curving downwards and outwards, so as to pass across the bone an inch at least below the trochanter major, when it should turn upwards to the extent of three inches or more, as the size of the limb may require. This incision or flap should, when complete, divide, in addition to the integuments, the fascia lata, the tensor vaginæ femoris, and part of the glutæus maximus. The flap thus formed must be raised or turned up by an assistant, to enable the operator to get at and divide the parts below, in the order before named. It is not necessary to stop to tie any bleeding vessel until the operation is finished, for little or no blood will be lost.

Pause again. The surgeon has just done nearly the outer half of the operation as to cutting, for removing the whole limb at the joint; and if he should now find that the bone is so much shattered in the shaft that he cannot hope to save the limb, there is no difficulty in removing it. To do this, place your long knife inside the bone, with the middle of its edge resting against the outer edge of the iliacus and psoas muscles, and at one firm cut of a strong hand let it cut its way inwards, forming an inner flap; your assistant steadily compressing the femoral artery against the bone above. This artery and its great profunda will both be divided; seize them with the finger and thumb of the left hand, and place a ligature, or assist in placing one, on each branch with the right; or if the trunk of the profunda should have been cut very short, tie the the main trunk of femoral. Let the ligature be a single thread of strong dentists' silk, with which I have successfully tied the common iliac, and no fear need be entertained of its not holding fast if you tie it reasonably tight. The idea usually entertained that a great artery cannot be closed by the ordinary process of nature under a ligature, if a branch is given off near it, is erroneous. I never placed reliance on this opinion; and the common iliac artery of one of the two cases in which I tied it successfully (the patient dying a year afterwards) may be seen at the Museum of the College of Surgeons: it is tied about an inch from the aorta, and was pervious on each side of the ligature, which has closed the vessel to no greater extent than its own width, proving all the facts I have mentioned so frequently on this subject. As to the smaller vessels, they will give no trouble, being easily commanded, each by the point of a finger. I have not done this operation of removing the head and neck of the femur on a living man, but it must be done, and I am satisfied it will in the end succeed. Amputation at the hip-joint should not be performed, unless the head and neck of the thigh-bone are injured; and it ought not to be done if they are, unless the shaft of the thigh-bone is extensively broken also. The operation I have recommended should be its substitute, and I hope yet to see a man walking with ease and comfort on whom it has been performed. The recommendation thus given is the result of the experience of former times, of the whole of the war in the Peninsula and Waterloo, matured by that of the last seven-and-thirty years in London Hospitals, and by a due consideration of the state of surgery throughout all civilized Europe and America. Surgery is never stationary, and surgeons of the present day must continue to show that it is as much a science as an art.

A REMARKABLE FORM OF BULLOUS DISEASE OBSERVED IN NEW-BORN INFANTS AND CHILDREN.

By Robert Barnes, M.D.

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At the close of the year 1850 and commencement of 1851, I observed several cases of a bullous disease in new-born infants and children, presenting a character so different from the forms described in works upon cutaneous diseases, or from anything I had previously witnessed in children, that I could not but conclude it to be a very rare, if not altogether a new disease. Upon inquiry among my professional friends, I was confirmed in this opinion; and Mr. Erasmus Wilson, whose skill and experience are so well known, has informed me that he has not observed any cases resembling those I am about to describe. In addition to the rarity or novelty of these cases, they possess considerable interest, when taken together with their attendant circumstances, as elucidating a recently much-controverted point in the pathology of the pemphigus of new-born infants. They further serve to show that very large vesications may appear unattended by any marked constitutional disturbance, and controvert the general opinion that this form of cutaneous disease is necessarily connected with an asthenic or cachetic state of the system.

Case 1.—Sept. 19, 1850.—Batchelor, an infant eight days old: father reported healthy, mother has the appearance of good health. The midwife said the child had had jaundice. Presents numerous blebs, varying from the size of a pea to that of a kidney-bean, filled with clear serum tinged yellow. The blebs are chiefly found in the bends of the axillæ and groins, and in the folds about the neck; but isolated blebs are also found on the scalp, trunk, and limbs. The epidermis seems simply raised from the dermis and filled with clear yellow serum; the dermis is slightly red underneath the raised epidermis, but only in a few instances does the redness extend beyond the margin of the bleb so as to form an areola. Where the blebs have burst, the skin presents the appearance seen after the application of a blister when denuded of epidermis, and still continues to secrete a serous fluid. The child exhibits no other mark of ill-health and is well nourished. It is fretful, from the irritation caused by the blebs. Ordered oxide-of-zinc lotion to be applied where the blebs have burst, and especially where folds of skin rub together. To take grey powder and carbonate of soda, of each two grains every day.

Sept. 21.—No fresh bullæ. The denuded dermis, where the blebs had burst, is no longer inflamed or secreting serum about the folds of the neck. (This is the only part to which the lotion has been applied.) In the folds of the groins and axillæ, where the lotion has not been applied, the inflammation and irritation continue unabated. Ordered to apply the lotion generally.

26th.—On the seat of blebs which have burst there is still a serous secretion, but no inflammation except where folds of skin rub together.

Oct. 3rd.—No fresh bullæ; secretion drying up; inflammation disappearing where lotion is applied. The blebs in this case dried up without the formation of scabs. Perhaps this was prevented by the constant chafing to which the affected parts were exposed. The child's health did not appear to suffer throughout.

Case 2.—Sept. 21st, 1850.—Watkins, an infant one week old. This case is so nearly similar to the foregoing, that a detailed account is unnecessary. The only circumstances to be noted are—first, that the blebs are filled with clear colourless serum, and not stained yellow, as in the first case, which was to be attributed to the jaundice; secondly, the blebs were not so numerous.

Sept. 26.—Fresh bullæ have appeared, the old ones have burst, and a serous secretion follows. The oxide-of-zinc lotion has been used with good effect.

Oct. 3rd.—No fresh bullæ; skin healed.

Case 3.—Oct. 1st, 1850.—Claridge, an infant four days old. A similar case to the two preceding. The blebs are most thickly formed between the folds of the skin. My colleague, Dr. Miller, to whom I sent this case, writes me word—"The case of pemphigus is well marked; the infant is well nourished, and does not appear to be affected with the syphilitic poison. . . . . If it is not syphilitic, it is worthy classing as a new species (Pemphigus neonatorum.")

Oct. 5th.—Most of the blebs have broken, and are drying up.

8th.—Several fresh blebs on different parts of the body; one on the scalp near the forehead is larger than a half-crown piece; it is quite flat, and the skin being but slightly red underneath, it might escape notice: but the epidermis moves freely on the dermis, and might be easily rubbed off by slight pressure. There is one bleb the size of a bean on the fore-finger of the left-hand.

11th.—The oxide-of-zinc lotion has had an excellent effect in almost healing the abraded surfaces. The scabs are partially detached; the skin is slightly red underneath, but quite healthy.

CASE 4.—Oct. 8th, 1850.—Nicholles, aged four years; lives in same house as Batchelor; in delicate health; has one bleb the size of a hazel nut on the scalp, a similar one on the abdomen; these blebs were followed by serous scabs, and dried up in a few days.

CASE 5.—Jan 29, 1851.—Peters, aged twelve days; the child has wasted much, is occasionally sick; the bowels are disordered. The state of health of the patient is very different from that of the others; in other respects, the appearances are similar. To leave off suckling; to take arrow-root and milk.

Feb. 8th. Dr. Mackenzie, under whose charge the child is, has been administering ammonia in milk. No fresh blebs have appeared; the old ones are healing. The child has rallied almost entirely, and promises to do well.

Two other cases were also brought to me in which scabs similar to those of the other cases were all that was to be seen. I infer that they had followed similar blebs.

If the cases I have narrated be compared with the bullous forms of disease described by authors, some remarkable peculiarities will be noticed. Dr. Willan, under the name of Pemphigus infantile, and Bateman and Biett, under that of Rupia escharotica, describe a very serious disease, often fatal, and in which treatment was attended with little success. A most formidable disease has been described by Dr. Whitley Stokes as being endemic, and occasionally epidemic, in certain parts of Ireland. "The complaint," he says, "comes on in perfect health, one or more vesicles appear, mostly larger than the best distinct small-pox; these increase for two or three days and then burst. Before or after breaking, the vesicles run together. Ulcers follow, which spread rapidly." A less serious form has been described by Dr. Underwood, under the name of Phlyctæna, who says, "it appears both in bowel complaints and in teething." . . . . . "The bowels usually abound with acidity whenever there is much eruption on the skin." This affection appears to be similar to the Pompholyx benignus of Willan. It is the same disease as the Pemphigus acutus of other authors. Mr. Erasmus Wilson says it is a rare form of cutaneous disease, attacking children and young persons chiefly, attended by a trifling or moderate degree of constitutional disturbance. Osiander speaks of Pemphigus connatus. Alibert cites a case of a child born with a large bladder on the chest. Lobstein has written a treatise on Pemphigus neonatorum; but all authors who refer to it, speak of it as a rare affection. Dr. A. T. Thomson says of Pemphigus infantile or Rupia escharotica, that he has never seen the disease.

The pemphigus of children has recently attracted much attention, from the remarkable discussions concerning its supposed syphilitic origin, which took place in the Académie de Médecine, in which the affirmative of this proposition was contended for by M. Dubois. The cases I have narrated are of considerable interest in relation to this question. If they be admitted as analogous in their nature with the affection which formed the subject of the discussions referred to, these cases offer conclusive evidence that M. Dubois was in error in maintaining the absolute universal dependence of the pemphigus of new-born children upon syphilitic contamination. In the first place, this bullous disease was not confined to new-born children. Cases 1, 2, 3, and 5, occurred in infants under twelve days old, but case 4 was that of a boy, four years old, who had previously been healthy, and in whom the disease broke out, about three weeks after its appearance in a new-born child living in the same house. If the eruption was due to a specific taint in the mother, in the instance of the infants, this could not be the case with the boy four years old. The truth appears to be, that pemphigus, like other forms of skin disease, may be associated with the syphilitic poison, but that it may also arise in the absence of any such contamination. The closely consecutive appearance of the eruption in the two children, raises the idea of contagion; and it is also remarkable that all the cases occurred during the autumn and winter of 1850: but it is impossible to deduce any positive conclusion from these coincidences.

There are few things more important in pathology than to obtain a comprehensive knowledge of all the various forms which a disease may assume, the different degrees of severity they may present in different subjects, in different seasons, and under other modifying conditions. Under different circumstances, the symptoms observed may be so widely different, that it is not always easy to trace them as various manifestations of the same disease. In the cases I have related, the bullous form of cutaneous disease appears under a phase very different from the severe affections described by Willan, Bateman, and Whitley Stokes; it was mild in character, attended by little or no constitutional disturbance. It differed also from the affection described by Dr. Underwood, in not appearing to have any relation to disordered digestion or teething. And yet I am disposed to regard it as closely allied to the forms described by these authors.

The value of these cases therefore depends greatly upon their comparison with others. Viewed in this manner, it will be seen that bullous eruptions may break out in persons of every age, in the most opposite states of health, with or without febrile symptoms, in short, under almost every variety of circumstances. But this fact, so far from justifying minute nosological divisions, seems merely to prove the impossibility of connecting bullous eruptions with any special conditions of the system, and would lead us to avoid the application of any technical terms founded upon what are most probably only accidental complications. The more useful course is to describe, from actual observations, the forms as they occur, without attaching too much importance to their position in artificial classifications.

The cases I have described offer some useful illustrations of the futility of over-refinement in classification. Dr. Schedel (Lib. Med.,) seeking to discriminate rupia from pemphigus, says, that in rupia the bullæ are always followed by ulceration, and the scabs are of great thickness; whereas, in pemphigus there is no ulceration, and the scabs are thin and flimsy. I have certainly seen cases of pemphigus in adults, at the Hôpital St. Louis, in which the blebs were not followed by prominent scabs or ulceration; but I do not think that Dr. Schedel's diagnosis is worth maintaining. The Cases 3 and 4 presented prominent scabs so like those of rupia as scarcely to be distinguished; and where such large indurated scabs occur, it is easy to imagine that ulceration may attend their detachment. A cachectic condition of the system at the time, would, in all probability, have determined this result. The varying features of these bullous eruptions depend more upon the different circumstances of the constitution, than upon any specific character in the eruption itself.

Were it necessary to assign to the cases I have described, a place in nosological classification, I should follow the nomenclature of the late Dr. A. T. Thomson, and refer them to his order, Pompholyx; but that they have a close family relationship to the Pemphigus, Phlyctæna, and Rupia of other authors, I think can scarcely be doubted.

ON THE

DETECTION AND PRESERVATION OF CRYSTALLINE DEPOSITS OF URIC ACID, URATE OF AMMONIA, PHOSPHATE OF LIME, TRIPLE PHOSPHATE, OXALATE OF LIME, AND OTHER SALTS.

By Arthur Hassall, M.D. Lond., M.R.C.P.

Several medical friends have written to me from time to time for instructions in the method by which the above and some other crystalline deposits may be permanently preserved for study and comparison as microscopic preparations.

As it is of the utmost importance that every facility should be afforded for the study of the various derangements to which the renal secretion is liable, as it is only by the united labours of many inquirers that we can hope ever to arrive at a complete knowledge of the many pathological conditions of that fluid, and as, further, many men are deterred from following out investigations of this nature in consequence of supposed difficulties, many of which are rather imaginary than real, I propose, in the present communication, to put together a few brief and simple observations and directions, showing the characters by which the principal deposits may be distinguished, and, when discriminated, how they may be permanently preserved.

The *materials* required for the preservation of the deposits which occur in the renal fluid when in a morbid condition, are, test tubes, distilled water, a camel's-hair brush, glass slides, cells, covers for the cells, and cements.

The *slides*, for the sake of uniformity, and for convenience of disposal in the drawers of the cabinet, are now all made of one size—viz., three inches long by one broad; in general the slides are quite plain, but sometimes they are hollowed out in the centre into little pits or cells.

The *cells*, when separate, should be made out of thin glass, and should be furnished with a large aperture; they are to be affixed exactly in the centre of the slide by means of the cement, to be described hereafter.

The *covers* are to be of still thinner glass, of a circular form, and are to be accurately fitted by means of cement over the aperture in the cells.

Three different *cements* are required to secure the cells and covers; one should consist of marine glue; the second of asphalte dissolved in turpentine; and the third of a mixture in equal parts of the second cement and gold size. The marine glue is to be heated over the flame of a candle, and used to fasten the cells to the slides; with the asphalte the margins of the cell are to be coated over, and on to this, when nearly dry, the glass cover is to be dropped. The object of applying this coating is, that by means of it the cover may be so secured as to prevent the third cement, which is used to secure the edges of the cover, from running into the cell, and so spoiling the preparation. The slides, cells, and covers may all be procured from the principal manufacturers of microscopes.

Next to urate of ammonia, deposits of *uric acid* are the most frequent of all; they may be recognised by the eye alone, by their fawn colour more or less deep, and sandy or crystalline texture. Sometimes, however, the sediment is so pale, although not absolutely colourless, and the crystals so minute, that a microscope is necessary to determine their nature: by the aid of this instrument they may at once be recognised. The primary form of the uric-acid crystal is a rhomb, which is met with in every modification of size and shape, and in one of two states—either the crystals are single and separate, or else compound and aggregated, glomeruli or spherules being formed by the crossing at angles and union of several crystals. It happens occasionally, when the crystals are very small, that some of them, in place of falling to the bottom of the vessel, form a delicate scum, or pellicle, on the surface of the liquid, which is very apt to be overlooked altogether, and the nature of which the microscope only can make known to us.

Deposits of uric acid may be permanently preserved in the following manner: the supernatant fluid is to be poured off, and the sediment transferred to a test-tube; this is to be filled with distilled water, which, as soon as the deposit has entirely subsided, is also to be carefully poured away, or removed by means of a pipette; the tube is then to be filled a second, and even a third time, with distilled water.

The object of washing the crystals is to get rid of the mucus and soluble salts, which, as the liquid evaporated, would collect round, and render the crystals indistinct.

But sometimes the crystals of uric acid are concealed in a dense cloud-like sediment of urate of ammonia, and this must be got rid of before the uric acid can be obtained separately. The separation may be thus effected; the supernatant liquid, except so much of it as contains the urate, is to be poured off; the remainder is to be transferred to a large test tube; this being gently heated over a spirit-lamp, the urate is redissolved, and the uric acid left free and unaffected; this is then to be washed in distilled water, as above described.

The deposit being now well washed, and freed from adherent mucus and the soluble salts of the renal secretion, is to be removed from the test-tube, and placed in one of the cells previously affixed to the slide. A soft camel's-hair brush will be found to facilitate the transference and to assist in distributing the crystals evenly over the interior of the cell.

The cell is next to be set aside until the crystals have become perfectly dry; lastly, the cover is to be put on and secured as directed with the appropriate cements.

Now precisely the same steps must be taken in order to preserve all the other deposits enumerated; they must all be collected in the same manner, and well washed in distilled water.

Urate of ammonia is the commonest of all the deposits; it occurs generally as an amorphous powder, very soluble in hot, and but sparingly so in cold water; occasionally, but rarely, it is met with in the form of little shot-like spherules, and when in this state only is it possible to preserve this salt in a satisfactory manner. The deposit should be but once washed in very cold distilled water. Sometimes the spherules collect on the surface, or adhere as a brown crust to the side of the bottle containing the secretion.

Uric acid and the urates of ammonia and soda are the only *coloured* deposits which occur in the renal secretion, with the exception of that very rare deposit, cystine; the rest are all colourless, and herein we have a simple character by which uric acid and its combinations may be distinguished from the other deposits.

The *neutral phosphate of ammonia, and magnesia* or *triple phosphate*, as it is sometimes termed, is also very frequently present as a deposit; the crystals have the form of a three-sided prism, and are often so large that they are visible to the naked eye. In a white glass bottle held up in the rays of the sun, the crystals of this salt, as they descend in the fluid, are to be seen shining like myriads of minute diamonds.

Very commonly, some of the crystals, in place of falling as a sediment, float on the surface of the liquid, forming a pellicle; sometimes the crystals are free, but more usually they are imbedded and entangled in a gelatinous-looking layer of phosphate of lime.

The modifications in the form and size of the crystals of triple phosphate are very great, but the whole of the varieties are reducible to the one primary form.

The bibasic triple phosphate is a rare variety of renal deposit, and is met with in the fluid of the kidney, principally when this has been kept for some time. It presents itself in the form of beautiful feathery stellæ, which are extremely difficult to preserve in a satisfactory manner, as, in drying, they are apt to fall to pieces, and so become disintegrated.

Another rare form is the *phosphate-of-lime deposit*. The crystals occur sometimes singly, at others in tufts or stellæ.—Although they usually fall as a sediment, yet they may often be detected floating on the surface of the liquid, either free or intermixed with crystals of triple phosphate, or entangled in a pellicle formed of vibriones.

Oxalate of lime is of rather frequent occurrence as a deposit. It may occur alone, but more commonly it is mixed up with either triple phosphate, uric acid, or urate of ammonia. Some writers state that the crystals frequently do not form a sediment, but remain suspended in the liquid, and direct that a portion of the renal fluid should be gently warmed in a watch-glass to allow of their subsidence. This is unnecessary, as, if sufficient time be given, the crystals always fall and collect at the bottom of the vessel containing the secretion. If, as is frequently the case, there be much epithelium or mucus, the crystals will become entangled, and concealed indeed, in these to some extent. The dumb-bell form of oxalate of lime is not so uncommon as is generally supposed. As in the case of the other compounds and salts, the crystals sometimes collect on the surface of the liquid. I have met with crystals of oxalate of lime, both octohedra and dumb-bells, so small that their form could scarcely be distinguished even with an object-glass magnifying 420 diameters.

The last of the deposits met with in the renal fluid is *cystine*. This is exceedingly rare; it forms a copious pale-coloured precipitate, resembling to the eye that of urate of ammonia, but immediately distinguishable under the microscope by its crystalline texture, the crystals forming flat, six-sided lamellæ, which are often compound.

Many of the *soluble* compounds and salts likewise admit of being preserved, in a manner more or less satisfactory, as urea, nitrate and oxalate of urea, the chlorides, sulphates, and phosphates. Into the method of preserving these I propose to enter in a second communication.

I have at the present time in my cabinet several hundred preparations of the above deposits, put up in the manner just described, and many of which have been thus preserved for years. Of the more interesting and curious varieties I have had figures executed, and am now engaged in the preparation of these for publication.

ON THE
USE OF GLYCERINE IN THE TREATMENT OF CERTAIN FORMS OF DEAFNESS.

By Thomas Wakley, Esq., F.R.C.S., Eng.,

Surgeon to the Royal Free Hospital, London.

The class of cases to which I would draw attention in this report, are those of *cuticular* or *epithelial thickening* of the meatus, either *partial*, affecting the membrane of the tympanum, or *complete*, being continued over the entire auditory cul-de-sac. There is a greater or less degree of deafness, corresponding with the amount of thickening; cessation of the secretion of cerumen; frequently tinnitus, or a "singing and hissing sensation" in the ears, and tickling irritation of the meatus. The causes are, constitutional predisposition, advanced age, chronic inflammation, long-continued discharge following eruptive fevers and the application of escharotics and irritants. Amongst the latter, I would mention oily preparations, the globules of which adhere to the sides of the meatus or membrana tympani, and become rancid, thus producing a very frequent cause of inflammation. Upon examination of the affected ear, we find the meatus shining and inelastic, of a pearly whiteness, the membrana tympani either clouded or streaked, sometimes having small elevations upon it. The meatus is quite dry, the cerumenous glands being choked up by the epithelial growth.

The mode of application of the glycerine, when treating this state of the ear, is as follows:—The meatus is well cleansed with tepid water, and then dried by means of the forceps and cotton. Glycerine is now poured into the meatus, and a plug of gutta percha, softened in boiling water, made to fit the external opening; this takes the exact form of the ear, becomes hard, and effectually prevents either the entrance of atmospheric air or the exit of the glycerine. The ear should be examined daily and the same process repeated. The lining membrane can be examined with a blunt silver probe, passed gently through the speculum auris, to ascertain the effect of the glycerine upon the cuticular thickening. The meatus will gradually lose its shining pearly appearance, and softened pieces will fall off, and can be removed either by the forceps, or gentle syringing. The practitioner should never attempt to tear them away, but allow them to come away by the means just stated. The treatment occupies ordinarily from two to four weeks, and is generally without any pain or inconvenience of any kind to the patient, and the results, in some cases, have been very gratifying. In the after treatment the patients are directed to moisten the auditory canal at least once a week with glycerine, applied by means of a camel-hair brush; this will generally prevent a recurrence of the cuticular thickening.

The *modus operandi* is simple enough—the glycerine being kept continually in contact with the part, acts mechanically, either absorbing or penetrating the epithelial coating, and separating the individual particles.

With respect to the permanence of the relief—some cases always require the presence of glycerine as the best known substitute for the natural secretion of the aural membrane. The frequent introduction of the glycerine tends to restore the external meatus to a healthy condition, and fit it for the healthy transmission of sound.

The mechanical power which glycerine possesses in separating this epithelial growth in some cases is very remarkable. I was consulted about two months since by a lady of rank, a patient of Sir James Clark, for deafness in both ears. In the right ear there was almost total deafness, from an enormous amount of epithelial thickening, which narrowed the calibre of the auditory canal, so that it would not receive the smallest-sized speculum. The depth of the *cul-de-sac* was also much less than normal, from the same cause. The lady was between seventy and eighty years of age, and told me that she had been deaf from her childhood in that ear; and there is but little reason to doubt that the deposit had been accumulating and hardening during nearly the whole of her life. The glycerine was used in the manner already described, and its action was very beautifully illustrated. A short time since, a large mass of the softened growth was removed without any inconvenience to the patient,—a larger quantity, perhaps, than I had ever before separated from the ear. The calibre and depth of the ear will therefore be increased considerably when the swelling of the lining membrane shall have subsided from its having been saturated with glycerine; this will gradually exude and come away. This case is still under treatment, and I shall mention it again at a future period, when the effects of the treatment upon the hearing can be safely declared.

I may mention another case in the family of a nobleman, patients of Sir B. Brodie, where very considerable thickening existed over the entire aural *cul-de-sac*, but which readily yielded to the softening action of the glycerine, although it had previously resisted the use of caustics and various applications of the essential oils, &c., ordinarily employed.

The following cases are examples of the action of the glycerine on this class of chronic diseases of the ear:—

M. R——, a clergyman of Hants, aged sixty-six, applied, June 16, 1851, suffering from deafness of the right ear, which had existed for more than twenty years; indeed that organ had become wholly useless. Upon examination, I found the meatus polished and dry, quite inelastic to the touch, and of a dull white colour. The central part of the membrana tympani presented even more opacity than the other parts, and no secretion could be detected in the ear. I applied the glycerine after having well cleansed the meatus, fitting the gutta percha plug after the manner already described. This treatment was repeated every morning, and at the end of fourteen days I was enabled to remove a large portion of pulpy epithelium. Again, four days afterwards, more softened skin was taken away. The ear was well syringed, and all the smaller particles removed. Upon examination of the ear with the speculum, the meatus was found much improved in appearance; the membrane slightly swollen, from saturation by the glycerine; there was still, however, a portion of the cuticular deposition hanging on the left side. Upon testing the patient's hearing with the sonometer, it was found to have improved two degrees. The same treatment was then continued, and at the end of a week the last piece came away. The ears were again gently syringed, but with no further effect. A small portion of wool was then placed in the external opening of the meatus, and the patient was directed to return to me in four days. Upon his visiting me as desired, his hearing was again tested by the sonometer, and it was found that he had improved six degrees. There is little doubt that the deafness in this case was owing to the mechanical obstruction in the passage of sound produced by the cuticular deposition. When I last heard from this gentleman, there had been no return of his deafness.

H. M——, a dissenting minister, thirty-eight years of age, consulted me, Aug. 19, 1851, for long-standing deafness of both ears, which he stated would ere long cause him to retire from his profession, as he could hardly hear his own voice. The meatus throughout had that "parchment appearance" so characteristic where cerumen has ceased to be secreted. The membrana tympani presented a similar appearance. The same treatment was resorted to as in the foregoing case, and the result was equally successful. In sixteen days two soft, pulpy, membranous pieces were removed, and in a month his hearing, on being tested by the sonometer, was found equal to the lowest tone but one of the instrument.

During the treatment it was found necessary to attend to the general health of this patient, and preparations of steel and the mineral acids were employed with great advantage. I am in correspondence with this patient, and he still retains his improved hearing. From the history he gave of his malady I consider that the thickening was caused by constitutional predisposition, or, as he termed it, a "deaf taint" in his family, as several other members, both older and younger, were similarly affected.

H. T—— consulted me at the Royal Free Hospital, (by direction of Mr. Edwards, of Brompton,) Nov., 1851. He had been deaf for twenty-six years, and presented, in every particular, a case of strongly-marked cuticular thickening. He stated that he had suffered from inflammation of the ear, experiencing at the time excruciating pain. This lasted for three or four months. He was told it was neuralgia. As the pain left him, the deafness gradually supervened, increasing daily. This case occasioned me much trouble, from the want of punctual attendance on the part of the patient; at length, however, a considerable mass of almost cartilaginous consistence came away from both ears, with very great relief to the patient's hearing. Caustics had been previously used for the cure of his deafness, to a very great extent; but, as the man said, always making him worse instead of better, causing pain and inflammation of the ear.

This case, in its result, was one of the most successful that has fallen under my notice.

In this report, I feel it absolutely necessary to caution the profession against the use of the impure glycerine in the market. Several samples have been forwarded to me by both surgeons and patients. Upon careful examination of the liquids, I found only one sample to consist of pure glycerine; the others had a low specific gravity, or contained a considerable quantity of lead or of rancid oil, having been manufactured from putrid fat.

Several letters have been sent to me on this subject; the following extract is taken from one that I received from Dr. Houseman, Newcastle-on-Tyne:—

"The use of glycerine in certain forms of deafness is likely to suffer from the impure samples in the market: it would be well to remind the profession of this fact. Messrs. Gilpin, of this town, have supplied me with the preparation pure, and several patients have been cured by the application. Glycerine should be a clear, scentless syrup, intensely sweet, instead of the rancid stuff usually sold under that name," &c. &c.

Thus it is easy to account for failures in many cases that have been reported; and I would strongly urge surgeons who are treating certain forms of deafness with glycerine to test it themselves, and thus be certain of the purity of their agent. Pure glycerine should be a white, syrupy fluid, inodorous, specific gravity not less than 1·32, quite free from oily globules and oxide of lead. The latter may be detected by passing through it a current of sulphuretted hydrogen, which will easily blacken it. Any fatty matter may be discovered by mixing it with water: the disagreeable smell will at once prove that it has been manufactured from putrid fat.

In conclusion, it may be said, that impure glycerine being so easy of detection, it is desirable that its utility as an agent in the treatment of deafness will not henceforth suffer from the employment of an article that has no nearer affinity to glycerine than the name.

ON REINSCH'S PROCESS FOR THE DETECTION OF ARSENIC.

By Harry Rainy, M.D.,

Regius Professor of Forensic Medicine in the University of Glasgow.

This process consists in boiling the suspected fluid with about $\frac{1}{10}$ of its bulk of muriatic acid, along with copper. The arsenic is deposited on the copper in the form of a steel-grey film.

It is generally supposed that this process is equally applicable to all the compounds of arsenic soluble in dilute muriatic acid; and that, in all circumstances, it detects the presence of the metal with a delicacy more than sufficient for every practical purpose.

Soon after the publication of Reinsch's method, I made various experiments, with the view of determining the limits within which its indications might be relied on. The result was unsatisfactory, for while in some cases it seemed to be fully as delicate as the method of Marsh, in other cases I failed to obtain the metallic deposit where the arsenic was present in a much higher proportion. Similar observations have been made by others, for it is stated by Fresenius and Van Babo, that "the presence of nitrates and various salts of mercury, and other metals, renders the separation of arsenic by copper difficult or even impossible." It seems also to be a general opinion, that when the proportion of arsenic is extremely minute, the process of Marsh is decidedly preferable.

It is obviously important that the cause of such discrepancies should be investigated, as the great rapidity and simplicity of Reinsch's process renders it peculiarly suitable for medico-legal investigations, and give it a decided superiority over every other if it can be conducted in a manner that will ensure equal delicacy.

The following experiments were made with the view of ascertaining the cause of these discrepancies, and, if possible, the means of preventing them. The copper was used in the form of very thin foil, which was easily cleaned and polished, so as readily to show any change of colour; the fluid usually contained *one-tenth* part by measure of muriatic acid of the ordinary strength, except when the object was to ascertain the effect of varying this proportion; and in order to, prevent any diminution of the fluid, or any change in its strength during the boiling, a condenser containing cold water was placed closely over the mouth of the vessel in which the process was carried on.

1. My first object was to ascertain the *extent of copper surface* that can in the most favourable circumstances be distinctly coated with a given quantity of arsenic. The results were very uniform. *One thousandth of a grain* of arsenious acid gave a full steel colour to *one square inch* of copper surface. When *two* square inches of copper surface are used with the same quantity of arsenious acid, the effect is still distinct; but the deposit is in these circumstances so thin that there is a tinge of yellow, apparently from the copper shining through or not being uniformly coated. *Two* square inches of copper surface, then, is the utmost extent of copper surface that can be distinctly coated by *one thousandth* of a grain of arsenious acid; and it can be proved that the thickness of the film of deposited metal, if consisting merely of arsenic, does not exceed $\frac{1}{4000000}$ of an inch.*

It follows from this result, that if the extent of copper surface be too great relatively to the arsenic present, no distinct deposit will be obtained; thus, a fluid containing one thousandth of a grain of arsenic, with *three* square inches of copper surface, might give a tarnish, but no distinct coating.

2 The effect of *dilution* was next examined. When the fluid was to the arsenic as *one million* to one, the deposit was distinctly formed in fifteen to twenty minutes. Thus, one-thousandth of a grain of arsenious acid in one thousand grains of fluid and consequently constituting one-millionth part, gave a distinct coating to one square inch of copper surface in twenty minutes. The same quantity of arsenious acid, in two thousand grains of fluid, also gave a deposit on the copper; but it was less distinct, and required a longer time. It appears then, that with a dilution of one million times, the effect is distinct and prompt, and when the dilution is carried to two million times it is indistinct and tedious. A dilution of two million times appears to constitute the practical limit in Reinsch's process. By continued boiling it is easy, of course, to concentrate the fluid, so as to bring the dilution within these limits, if arsenic be present in any proportion, however small; for there appears to be no loss of arsenic by evaporation, during the boiling.

3. The *proportion of muriatic acid* in the solution has considerable influence on the *rapidity* of the deposition, and even on its *production*, when the arsenic is in very minute quantity. Thus, if the arsenic is less than one-millionth, the process is very slow in a fluid containing one-tenth muriatic acid of the ordinary strength; but when it amounts to one-seventh or one-sixth, the deposition is much accelerated. And in solutions in which the quantity of arsenic is so small that with the ordinary proportion of acid no deposit is obtained, the copper becomes distinctly coated if the proportion of muriatic acid is doubled.

4. From these observations it would follow that the rapidity with which copper acquires a distinct arsenical coating is directly as the proportion of arsenious acid and also of muriatic acid in the solution, and inversely as the extent of the copper surface.

5. As copper receives a coating of a similar colour from other metals, from sulphur and sulphuretted compounds, the mere formation of such a deposit cannot be considered a conclusive proof of the presence of arsenic. It is merely a convenient method of *separating* the suspected substance, in order that it may be subjected to the appropriate tests. The most satisfactory of these test are, the formation of a white crystalline sublimate by heating the coated copper; the solution of this sublimate in water; and its conversion, by the appropriate reagents, into arsenite of silver, orpiment, and arseniate of silver, all of which are very easily recognised by the peculiarities of their

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* I afterwards found that the film contains a large proportion of copper, and consequently the thickness will be greater than is stated above.

colour and other properties. In estimating the value of Reinsch's process, it is therefore necessary to ascertain, not only the smallest quantity and the utmost dilution under which it can be separated and distinctly exhibited on copper, but also the smallest quantity which, when so separated, can be satisfactorily subjected to conclusive tests.

In repeated experiments I found that one-thousandth of a grain of arsenious acid in one million times its weight of fluid, could be separated as a distinct deposit on copper. The copper thus coated, when heated gently in a small tube, yielded a slight but distinct sublimate, most obvious on a black ground, and which, with a magnifying power of ten to twenty diameters, was found to consist of crytals with triangular facetles, and which, when dissolved in water, yielded orpiment and the red arseniate of silver, when treated with the appropriate reagents.

This I believe to be as great a degree of delicacy as has actually been obtained by the more tedious and troublesome process of Marsh, and is more than sufficient for every practical purpose.

6. When investigating the delicacy of Reinsch's process, I prepared quantities of very dilute solutions of arsenious acid, varying in strength from $\frac{1}{10000}$ to $\frac{1}{100000}$, and kept these solutions in readiness for the experiments which I had planned. When first tried with copper and muriatic acid, they gave results entirely conformable to those already stated. A portion of any of these solutions, containing one-thousandth of a grain of arsenious acid, when diluted so that the fluid amounted to a million times the weight of the arsenic, gave a distinct and rapid deposit on the copper; but afterwards I could obtain no deposit from larger quantities of arsenious acid, though in a more concentrated state. As an example, a portion of solution containing $\frac{1}{200}$ of a grain of arsenious acid in 200 grains of water, and consequently with a dilution of one in forty thousand, gave *no deposit whatever* when boiled in the ordinary way with copper and muriatic acid for upwards of fifteen minutes. In this case, the surface of the copper was only one-eighth of a square inch, and therefore could not interfere with the result by its too great extent.

I was perplexed with the apparent inconsistency of these results with those previously detailed, and began to suspect that I had been misled in my first estimate of the extreme delicacy of Reinsch's process. But after repeated trials, I found the difference to depend on the *length of time that the solution is kept. Very dilute solutions of arsenious acid become gradually less and less sensitive to Reinsch's process*, so that after several weeks no deposit can be obtained on copper from solutions containing arsenic in the proportion of *one* in *fifty thousand*, or even one in twenty thousand.

7. I was thus led to examine whether these dilute solutions underwent any appreciable change in their chemical properties, and found that with nitrate of silver they gave a greyish cloud; when concentrated by evaporation to a small bulk, the residual fluid *strongly reddened litmus*, and when evaporated to dryness, left a white stain, which did not sublime at a low red heat. This stain re-dissolved in a few drops of water, formed a solution which *still strongly reddened litmus*, and which, on the addition of a strong solution of nitrate of silver, gave a *brick-red precipitate*.

These experiments clearly indicate the conversion of *arsenious acid* into *arsenic* acid.

8. In all watery solutions of arsenious acid this change appears to take place to a certain extent, if the solution is kept for a considerable time. I have uniformly found arsenic acid in such solutions if concentrated to a small bulk by evaporation. The residual liquor reddens litmus, and gives a brick-red precipitate with nitrate of silver. But this conversion of arsenious into arsenic acid is *restricted within very narrow limits*; as the arsenic acid increases, the change goes on more slowly; and when the arsenic acid amounts to one part in ten or fifteen thousand, *no further conversion takes place*. Hence the whole, or nearly the whole, of the arsenious acid may be converted into arsenic acid in a very *dilute solution*; while in a *concentrated* solution, though the same absolute quantity is so converted, it will bear a trifling proportion to the arsenious acid which still remains unchanged.*

9. I cannot assign the cause of this change with absolute certainty, but there are strong reasons for believing that it depends on some principle communicated from the air; for it occurs more readily if the solution is exposed to the air in an open vessel or kept in a vessel only partially filled and often shaken. It is natural to suppose that it is the oxygen of the air which, in these circumstances, unites directly with the arsenious acid. This opinion is in accordance with the partial conversion of sulphurous acid into sulphuric acid, when its aqueous solution is in contact with atmospheric air. Still, I can adduce no proof of the correctness of this supposition, and it is conceivable that chlorine or some nitrous compound in the atmosphere may be the real agent.

10. Supposing, however, that *arsenious* acid, in very dilute solutions, is gradually changed into *arsenic* acid, will this account for the fact that such solutions gradually become less sensitive to Reinsch's test? This leads us to examine how solutions of *arsenic* acid, prepared in the usual way, are affected by that test. Is arsenic deposited on copper as readily in solutions containing *arsenic acid* as in solutions containing arsenious acids? I believe it is generally supposed that there is no material difference. Mr. Taylor, in his valuable work on Toxicology, represents the process as no less applicable to arsenic acid and its combination than to arsenious acid.

I made several experiments on this subject several years ago, and having operated on very dilute solutions, such as one part of arsenic acid in ten thousand parts of water, I was led to conclude, prematurely, that arsenic *cannot* be detected by Reinsch's process, when it is in the state of arsenic acid. This inference was erroneous; for the process succeeds partially when tried with moderately dilute solutions; still, the difference between arsenious and arsenic acid is very great, for a solution of one part of arsenic acid in *fifteen hundred* parts of fluid, containing one-tenth of ordinary muriatic acid, gives *no* deposit when boiled with copper, while one part of arsenious acid, as already stated, gives a distinct deposit when diffused in *one million* parts of a similar fluid. From numerous comparative experiments, it follows that arsenious acid is a thousand times more sensitive to Reinsch's process than *arsenic* acid; or, in other words, in order to give a similar deposit, arsenic acid must be present in a thousand times greater quantity.

An increase in the proportion of the muriatic acid promotes the deposition, so that indications of the presence of arsenic may be obtained with weaker solutions. Thus, a solution of $\frac{1}{1500}$ gave no deposit when the muriatic acid formed one-tenth, a slight tarnish when the acid formed one-eighth, and a distinct steel grey deposit when the acid was one-fifth.

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* I have recently ascertained that solutions of arsenic acid *containing animal matter*, such as milk or soup, do not undergo this change, but remain after an interval of several months as sensitive as ever to Reinsch's process. Hence it follows that in the bodies of animals poisoned by arsenious acid, the poison remains in the state of *arsenious acid*, and is not converted into *arsenic acid*, as happens in pure watery solutions. It is consequently easily detected in these circumstances by Reinsch's process.

In solutions containing $\frac{1}{10000}$ of arsenic acid, I obtained no deposit, even when the mixture contained one-third of the muriatic acid of ordinary strength.

11. These statements will serve to show that Reinsch's process is not applicable to the detection of arsenic when it is in the state of *arsenic acid*. They also explain, in a satisfactory manner, how the process becomes impaired in its delicacy when applied to dilute solutions of *arsenious* acid, which, by keeping, is gradually changed into *arsenic* acid.

12. The injurious effects of nitrates and other compounds, such as the persalts of mercury, is also explained by these facts, for when such substances are present along with muriatic acid, they readily convert the *arsenious acid* into *arsenic* acid, and thus render it much less sensitive to Reinsch's process.

13. In conformity with these views, it might be expected that if arsenic acid were reduced to the state of arsenious acid, it would be brought into a suitable condition for the application of Reinsch's process. This can be accomplished by sulphurous acid. If a current of sulphurous acid gas is passed through the mixture the arsenic acid is changed into arsenious acid, and the process resumes all its original delicacy, as I have ascertained by numerous experiments, both on dilute solutions of arsenic acid and dilute solutions of arsenious acid altered by keeping.

14. The mixture which is to be examined should first be boiled for a few minutes with the proper proportion of muriatic acid. It should then be allowed to cool, and a current of sulphurous acid gas should be passed through it till it is thoroughly saturated. This is most conveniently done by heating a mixture of sulphuric acid and charcoal in a flask furnished with a suitable tube for conducting the gas. Carbonic acid is produced at the same time; and escapes along with the sulphurous acid, but it does not in any respect interfere with the process.

It is indispensably necessary, however, that the sulphurous acid should be kept in contact with the arsenic acid for some time. The reduction of the arsenic into arsenious acid is a gradual process. I have sometimes found two hours necessary for its completion. When a sufficient time is elapsed, the superfluous sulphurous acid should be boiled off, till all smell of sulphurous gas is gone; the copper may then be introduced, and the process completed in the usual way.

15. Deposits bearing a considerable resemblance to the arsenical film, are produced by boiling copper in solutions containing free sulphur, sulphuretted hydrogen, and the combinations of sulphuretted hydrogen with bases, sulphuret of copper being thus formed as a thin film on the metal. The presence of muriatic acid is in no respect necessary for this reaction.

I thought it possible that sulphurous acid might act in a similar manner, and give rise to a coating of sulphuret of copper. On trial, I found this supposition incorrect, for the copper undergoes no change in its colour or lustre when heated in a watery solution of sulphurous acid.

If, however, muriatic acid and sulphurous acid are present together in a solution, the copper is speedily changed. It assumes a steel colour of a bluish tinge, dependent on the decomposition of the sulphurous acid, and the consequent formation of a thin film of sulphuret of copper. In this reaction we have $\mathrm{S\,O_2 + 2\,H\,C\,L. + 3\,Cu = S\,Cu + 2\,H\,O + 2\,Cl\,Cu}$ — 1 atom sulphurous acid + 2 atoms hydrochloric acid + 3 atoms copper, yield 1 atom sulphuret of copper, 2 atoms water + 2 atoms protochloride of copper.

This bears a close analogy to the action of hydrochloric acid, arsenious acid, and copper in Reinsch's process, in which $\mathrm{3\,H\,Cl + 3\,Cu + As\,O_3} = \overline{\mathrm{3\,Cl\,Cu}}$ $\mathrm{+ 3\,H\,O + As}$, or 3 atoms hydrochloric acid + 3 atoms copper + 1 atom arsenious acid; yield 3 atoms protochloride of copper + 3 atoms water + 1 atom metallic arsenic. It is also interesting to observe, that while the combined action of copper and muriatic acid can decompose arsenious acid and sulphurous acid, on the more stable compounds, arsenic acid and sulphuric acid, they act, on the one very feebly, and on the other not at all.

16. I have been led into these observations on sulphurous acid, in order to obviate an objection which might be made to its employment in bringing the arsenical solution into a fit state for Reinsch's process. It may be objected that the presence of sulphurous acid may itself cause a deposit on the copper, and thus mislead the experimenter. This difficulty, however, is obviated at once by boiling off the superfluous sulphurous acid before the copper is introduced. This will remove every ambiguity. But beside this, the subsequent testing, which is indispensable in every case, will afford complete security against error.

17. In a former part of the paper, I mentioned that dilute solutions of arsenious acid, when long kept, give a white cloudiness with solution of nitrate of silver, whereas it is well known that nitrate of silver gives no precipitate whatever in solution of perfectly pure arsenious acid. The occasional production of this cloudiness, in solutions of arsenious acid, has frequently been noticed. I am not aware that any attempt has been made to account for it I have satisfied myself that it arises from the presence of arsenic acid, produced in these solutions, as I have already explained, by exposure to the air. The arseniate of silver, in its ordinary form, no doubt is of a deep-brown or red; but the colour varies greatly with the state of dilution of the fluid: when concentrated it is of a reddish-brown; when more dilute, brick-red; when still more dilute, greyish; and when extremely dilute, as $\frac{1}{10000}$, a whitish cloud, exactly similar to that which is observed in solutions of arsenious acid, after they are kept for some time.

Postscript.—1. In Reinsch's process, if the arsenious acid exceeds *one-fiftieth of a grain* to *one square inch* of copper surface, the arsenical deposit is apt to peel off, and, when the fluid is muddy, may be lost,* unless the process is closely watched.

The scales thus detached do not consist exclusively of metallic arsenic; they contain *a large proportion of metallic copper*. This proportion I have never found less than sixty-five per cent; sometimes it is considerably greater.

2.—When these scales are heated in a test tube, a considerable quantity of arsenious acid sublimes in the usual crystalline form, but there is always a large residue unsublimed, consisting chiefly of oxide of copper, but containing also about *one-half of the arsenic*, apparently in the state of sub-arseniate of copper with slight traces of sub-arsenite. The presence of the arsenic acid in the residuum may be easily shown by boiling it with solution of carbonate of potash, filtering, neutralizing it accurately with nitric acid, and then adding solution of nitrate of silver, which gives a precipitate of red arseniate of silver.

3. A similar result is obtained when copper-foil coated with arsenic is heated in a test tube over a lamp. *One-half only of the arsenic* sublimes in the state of arsenious acid. The *other half* remains as in the preceding experiment, in the state of sub-arseniate of copper, chiefly adhering to the copper-foil, but partly in the form of a *white stain on the glass*, near the bottom of the tube. The arsenic acid may be obtained, both from the copper-foil and from the

white stain, in the state of arseniate of silver, by the process above described.

When it is wished to obtain the arsenic in the form of sulphuret, the alkaline solution, after boiling with the copper, should be saturated with sulphurous acid gas, to convert the arsenic acid into the arsenious. Muriatic acid should then be added in great excess, and the superfluous sulphurous acid disengaged by boiling. When this is effected, a current of sulphuretted hydrogen, being passed through the fluid, will precipitate the arsenic in the state of orpiment.

ON A CASE

OF CANCER OF THE STOMACH.

By Marris Wilson, M.D.

I have selected the following case for description from amongst many, because the unusual duration of the interval between its arrival at the commencement of the third stage to the death of the patient, is as interesting as it is remarkable. I will not attempt, in this short paper, either to detail the symptoms as they arose, or to enter into a minute relation of the methods of treatment adopted, but merely give a slight sketch of the landmarks, as it were, exhibited in the progress of the disease.

About the year 1845, Mr. C. B—— complained occasionally of indigestion and derangement of the functions of the liver and stomach, accompanied with headache, languid circulation, and inactivity of the skin and bowels. For these symptoms mercurial aperients were administered, with varying relief. The attacks gradually became frequent and obstinate, the intervals of ease diminished, and he began to be much distressed by continued constipation. The skin also assumed a peculiar greenish-yellow tint, characteristic of cachexia, and frequently associated with cancer.

In the early part of 1850, a small, deep-seated swelling was detected to the right of the mesial line, in the umbilical region, which was not painful on pressure. At this time serious attacks of vomiting commenced, and he threw up large quantities of dark-brown, almost black, viscid matter, as often as once a week, and which chiefly came on at night. Towards the end of summer of that year, these attacks of vomiting succeeded every meal, and the matter ejected was in larger quantities, and in consequence he was soon much emaciated and weakened. In September, his symptoms became so urgent, that a speedy dissolution was expected. Nitrate of silver prussic acid, and charcoal, were administered, with some relief, for a few weeks; but in December the vomiting and fœtid eructations had acquired their original violence; the stomach would not retain the smallest quantity of solid food for even ten minutes, and he was reduced to the lowest state of emaciation and debility. As a last resource, and when the patient appeared to be dying from innutrition, a mutton-chop thoroughly boiled, and pounded into a pultaceous mass, was given to him, which happily remained in the stomach; and this diet was continued daily.

An unexpected improvement in the disease commenced. On the 31st of March, 1851, he had increased in weight twenty-eight pounds; the vomiting was much diminished in frequency, and the pain in the abdomen was considerably relieved; the tumour, however, retained its size and position. He seemed to have regained strength, enjoyed exercise, and pursued his avocations with pleasure.

On the next day, the 1st of April, he was suddenly seized with faintness, and ejected from his stomach, with slight effort, a pint and a half of bright red blood. Two days afterwards this was repeated in smaller quantity, and he passed much black and decomposed blood.

He was again extremely reduced, but in about six weeks so far recovered as to follow his ordinary business. From the debility caused by this attack he, however, never entirely recovered.

The cancerous symptoms began gradually to progress; the tumour increased in size; the vomitings were not so frequent, on account of the increased capacity of the stomach, but the quantity vomited at each attack was greater; the eructations were more constant and distressing; increased debility and emaciation followed as a natural consequence, and in January, 1852, he died, excessively wasted in flesh.

A post-mortem examination confirmed the accuracy of the diagnosis. The pylorus was closed by a cancerous mass; a ring of colloid matter, which passed in front of the opening, entirely preventing the passage of nourishment into the intestines. Just above this, the structure of the stomach had been destroyed by cancerous ulceration, but the escape of matters from the opening into the cavity of the abdomen had been prevented by adhesions to the under surface of the liver; these adhesions had evidently taken place for some time previously. It was from this ulceration, no doubt, that the formidable hæmorrhage of April, 1851, proceeded.

It thus appears that, from its commencement, the disease had existed for nearly six years, the last stage being prolonged to the unusual term of two years.

At a future time I hope to have an opportunity of entering more fully into some of the peculiarities of this case, in conjunction with several others, and of describing them in a more detailed form.

CASE OF VARIOLA COTEMPORANEOUS WITH VACCINIA, BOTH MODIFIED.

By Robert Fowler, M.D., Edin.

Resident Medical Officer to the Loughborough Dispensary.

On March 31st last I vaccinated Marianne W—— aged three years, a perfectly healthy child. When next seen, on April 7th, I was told that on the very day (April 1st) following vaccination she became very sick, vomiting frequently, and feverish. On the evening of the next day (April 2nd) the mother fancies that there was a little redness about the chin, which however on the 3rd April assumed the aspect of decided papulæ over the whole face, arms, legs, and body. I now ascertained that at the school to which the child had gone up to the day of its being taken ill two or three of the scholars had had the small-pox about a month ago, and had returned among the other children some few days back.

April 7th.—The vaccine vesicles (seventh day) are larger than the variolous, very little elevated above the cuticle, irregular in shape, being not perfectly circular, but flattened and indented, and lobulated at the edges. There is evidently very little fluid in them, and no appearance of areola. The whole body is marked with distinct variolous vesicles, (fifth day,) having the same flattened aspect as, but smaller than, the vaccinia; and being so little elevated above the surface, they do not present that "shotty" feel so characteristic of variola, especially in its papular stage. Febrile action slight.

9th.—The variolous eruption (seventh day) is more turgid; that on the face is pustular, and a few of the pustules are beginning to scab; that on the arms is hemispheroidal, prominent, and pustular; that on the legs is opaque, but not distinctly pustular; the central depression still existing in some of the vesicles. The vaccinia (ninth day) is not more elevated. though the fluid seems more opaque; the vesicles are now about half an inch in diameter, but still present that irregular, indented appearance round their margin, external to which there is now an areola of about one line in diameter, as there is also around each variolous pustule. The variolous vesicles in the immediate neighbourhood of the vaccinia are much smaller and less opaque than elsewhere, neither are they so turgid or spherical as in other parts of the body. The mother attributes this to the child always lying on that side, (the right,) and certainly the left arm (which, however, by some oversight was not vaccinated) presents well-filled vesicles; the eruption of the right leg also is somewhat less prominent than that on the left, though certainly there is not that marked difference observable in the vesicles of the two arms.

10th.—Variolous eruption (eighth day) entirely pustular, scabbing going on in the face. Areola of vaccine vesicles (tenth day) no larger, though the vesicles themselves are larger, and beginning to lose their indented margin. The variolous eruption around vaccinia is now pustular.

12th.—Scabbing progressing on the face, (tenth day,) and the pustules on the arms shrivelling up; no secondary fever. A scab perceptible (twelfth day) on each vaccine vesicle; no increase of areola, nor is there any surrounding induration.

14th.—Some of the pustules on the legs shrivelling, (twelfth day.) Vaccinia (fourteenth day) scabbing, the scabs being rather conical, and of a dirty light brown in colour; no increase of areola.

16th.—All the pustules of the legs shrivelling, (fourteenth day.) Scabs of vaccine vesicles (sixteenth day) have fallen off, leaving an irregularly circular, purple-red mark, larger, though otherwise similar, to the stains of the variolous eruption; the vaccine stains are perfectly flat and smooth, without the slightest indication of the small depressions and radiating lines characteristic of a good vaccine cicatrix.

19th.—The whole body presents purple-red stains.

Remarks.—Considering vaccinia as a disease *sui generis*, we have here two exanthemata co-existing in one person, and each by its presence modifying, but not superseding, the regular course of the other. That the vaccinia was modified, is shown by the irregular shape and flattened condition of the vesicles, by the absence of the areola and surrounding hardness, by the shape and colour of the scab, by the duration of the eruption—the scab having fallen off on the sixteenth instead of about the twentieth day—and by the character of the remaining cicatrix. The size of the pustules and the absence of the secondary fever, notwithstanding the duration of the eruption was not considerably shortened, indicate that the variola was of a modified kind. By those sceptical of the prophylaxis of vaccination, the above case will be greedily seized on: but are we not from past experience warranted in surmising, and even affirming, that, although the discovery of Jenner was in this case incapable of arresting or superseding the progress of the poison already concocting in the blood, yet that to the co-existence of the vaccine virus this child owes the safety and mildness of its attack?

CASE OF CONTRACTION OF THE STOMACH.

By Thomas Dale, L.S.A, Liverpool.

Mrs. E. M——, aged forty-three years, married, mother of seven or eight children, was placed under my care, October 2, 1851. She is a very thin, delicate-looking person, of a scrofulous constitution. For seven or eight years, during winter, she has had a cough and difficulty of breathing. In May, 1849, she had an attack of cholera, and since has suffered frequently from a severe pain in the left side, about the cartilages of the false rib, son which pain nothing seemed to have any effect but stimulants and pressure, or food taken into the stomach; her appetite, however, was so poor, that she could seldom eat anything. In the summer of 1850, she occasionally ejected from the stomach a grumous sort of matter, after which she was easier for a week or two.

Her present symptoms are, severe pain in the left side, loss of appetite, constipation, weak pulse, numbering about 100 in the minute, cough, occasional dyspnœa; puerile respiration in both subclavian regions, and in the right scapular, large crepitation, pectoriloquy, and dullness on percussion.

Nourishing diet, stimulants, and sedatives were ordered, which for awhile gave some relief, but ultimately lost their effect. She gradually sank, and died on the 1st of March, 1852.

A post-mortem examination was made sixty-four hours after death. The right lung has numerous adhesions to the ribs and diaphragm, contains two cavities, one in the upper lobe and one in the middle lobe. Tubercular matter is also deposited throughout the greater portion of the lung. The left lung has a few adhesions, and contains a few crude tubercles. The heart is very soft and flabby. The liver fills the right hypochondriac and right lumbar regions. The gall-bladder contains no bile, but two gall-stones, each about the size of a hazel nut, and many smaller ones, probably two or three hundred. The stomach is constricted about midway between the cardiac and pyloric orifices, forming two sacks of about equal size, with a communication half an inch in diameter. The cardiac compartment has a healthy appearance. The pyloric, near the stricture, is rather vascular; there is not any evidence of ulceration, nor indeed of any diseased action beyond the vascularity and stricture. The great omentum is firmly adherent to the right iliac fossa. The caput cæcum poli is unusually capacious. The transverse colon is much narrower and its coats much thicker than natural. The small intestines are, in places, highly vascular. All the other organs are in their normal state.

A REMARKABLE CASE OF HIRSUTE GROWTH IN A FEMALE;

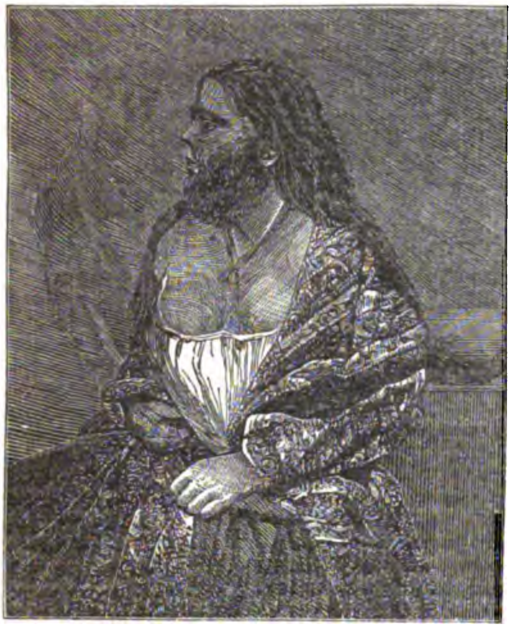
WITH OBSERVATIONS ON CERTAIN ORGANIC STRUCTURES AND THEIR PHYSIOLOGICAL INFLUENCES.

By W. D. Chowne, M.D.,

Physician to the Charing-cross Hospital.

Comments Delivered to the Students of the Hospital.

Gentlemen,—There are many facts interesting to medical science, connected with occasional growths of hair under abnormal, or what may be called incongruous, circumstances. You are already aware that a person came to this hospital, requesting to have a testimonial as to the sex of the individual, whom some of you have seen, and who is the subject of my present observations. The request was accompanied by a statement that she was under an engagement to marry, but that the masculine appearance of her face produced scruples in the mind of persons who would otherwise have performed the marriage ceremony. Her name is J. B——; she is twenty years of age, a native of V——, in Switzerland, and by occupation a needlewoman. She states that at her birth she had, as she has been informed by her parents, a beard—that is to say, a considerable quantity of hair growing on those parts of the face usually occupied by the beard and the whiskers in men, except on the upper lip and on the hollow immediately under the lower lip. It was at her birth, she states, about as long and as thickly spread as it usually is on a man's arm; in other respects she was not different from other female children. The beard grew gradually, and when she had attained the eighth year of her, age it was two inches long. At about eighteen years of age catamenial functions commenced, and have continued perfectly normal. She has had, and still has, very good health. Her occupations and dispositions are all womanly.



The Hirsute Growths.—At the present time, the beard and whiskers are what would be called very abundant, full and strong, exceeding in quantity even that of the beard and whiskers of men generally in this country. It grows also on the parts covering the cheek-bones, under the eyes. Those parts of her face which were without beard at her birth, are still without. The hair forming the whiskers varies in length from one to four inches; that of the beard is about the same length. It is all strong, and rather coarse, as well as being very thickly set. She states that it does not require cutting. When she appears in public, she has a handkerchief folded three-cornerwise on her head, put on so that two of the corners pass down over the sides of her face, and meet just below the mouth, thus concealing the peculiarity. As the handkerchief cannot be worn so as to conceal that part of the face over the cheek-bone, (as it would then cover the eyes also,) she shaves that part. In her own village, where she was well known, she had no occasion for the handkerchief, but in a strange place she finds it necessary, lest the police should regard her as a man disguished in woman's apparel.

The hair growing from the crown and back part of the head is two feet and a half long, and that growing from the front part of the head two feet. Both the front and back hair is moderately abundant, not excessively so. It is neither fine nor coarse: the colour dark brown; that of the whiskers and beard the same.

On the neck and on the parts just below the clavicles, are numerous hairs thinly spread; much coarser and longer than the hair generally visible there in men. On the shoulders, arms, and fore-arms, to the wrists, there is a quantity of hair, about equal to what would be found in a man moderately hirsute, but more uniformly spread over the whole circumference of these limbs. The mammæ and the whole of the sternal portion of the chest are quite free from hair, indeed quite fair. The breasts large, fair, and strictly feminine in all respects, including papillæ and their areolæ. On the back part of the shoulders there is also a good deal, and a tolerably broad line of dark hair extends down the back, sufficiently abundant to give quite a dark appearance in the line or depression over the vertebral column. The nates and the parts covering the tuberosities of the ischia, all have hair pretty uniformly spread, and in quantity about as much as would be on the limbs of a more than commonly hairy man. The anterior surface of the abdomen, extending from the umbilicus to the pubal and inguinal regions, has the masculine quantity and the masculine distribution. The surfaces of the inferior extremities, to the ankles, are in the same state, excepting only the knees and hams, which are in the more ordinary state.

General form and voice.—She is of short stature. The form of the head is not remarkable. The upper part of her thorax and the pelvis are feminine; her legs and knees less so. The feet small. The arms and the hands small and feminine. She has not any malformation of any kind. Dressed as a man she would not have anything *particular* to betray her. Her manner, however, appears to be gentle, and would constitute a contrast to man's attire. Her voice, in conversation, is not remarkable either way. She sings occasionally, and then it is feminine.

She states that in her own country it was deemed that there must be within the abdomen, organs male in their character, both corresponding to the superfluous hirsute growth, and accounting for it. She was, at the time of my seeing her, about five months advanced in pregnancy, Besides, the usual and less certain signs, the fœtal cardiac sounds were audible.

Family, relations, &c.—She states that her mother's complexion was neither dark nor fair, but between the two. Her father was of dark (brown) complexion, and had not much beard or whiskers, Her mother's father was remarkable for having both whiskers and beard extremely large. She has one brother, man grown, who is, she states, almost entirely beardless; and two sisters not different from other young women. Her mother does not attribute the peculiarities to fright or other cause that she has any knowledge of.

Co-existence of the secondary indications of sex with malformation of the primary. In almost all instances where the general contour or aspect, or other secondary peculiarities, indicative of the sexes, are blended in the same individual, obvious specific malformation, or excess, or deficiency, or a combination of the primary peculiarities of sex, has been found.

In this case, however, there is a series almost complete of masculine indications or peculiarities of the general or secondary character, apparently in the *entire* absence of specific malformation, or excess, or deficiency, or combination, presenting an axample to be classed amongst accidental growths of hair, rather than amongst such special growths as are the consequences of special physiological influences.

With reference to the possible existence of a concealed organ or organs in the subject of these remarks, it is worthy of notice, that although the superfluous growth is in some respects favourable to the supposition that such organs do exist, in other respects it does not favour that view. The beard, for example, existed *at birth*, and at *eight years old was two inches long*—thus anticipating the period of puberty instead of accompanying or following it, and proceeding altogether in advance, and *apparently independently*, of special organic influence. The beard was, and still is, confined to certain parts of the face, and is absent on others, where, in accordance with special influence, in a male, it should have been present, as on the upper lip and under the lower. On the whole of the anterior part of the trunk above the umbilicus, where, in accordance with the same influence, it should be even especially abundant, it is wholly or very nearly wholly absent. These circumstances conspire to weaken the supposition that there are concealed male structures, and to strengthen the probability that the superfluity of hair belongs to the accidental class.

Accidental Growths of Hair.—Accidental growths of hair are nearly, if not entirely, confined to the skin, the mucous membranes, and the interior of cysts. The physiology of the latter two is not without its extreme, if not insuperable, difficulties, and indeed many of the productions found in these situations having been ascertained not to be hair, but only resemblances to it, has involved the subject in extreme uncertainty, as well as difficulty. Those cases in which hair is said to have grown on the tongue, the pharynx, and the interior of the intestinal canal, where no hair follicles exist, may also be regarded as instances difficult, if not impossible, of solution.

As in the present instance there is not anything to indicate that the hirsute peculiarity has for its origin concealed masculine structure, except the situations which it occupies, it may be regarded as analogous to other examples of similar growth, which appear to be purely accidental. We may therefore regard it as very doubtful whether special primary organic structure is necessary to the production of hirsute growths, even of masculine character.

Several cases considered to be accidental have been attributed to frights prior to the birth of the child—modes of accounting for them which have been participated in by the mother. Other examples of hirsute growths not congenital, have been attributed to disease affecting the system generally; others to local disease.

ACCIDENTAL HIRSUTE GROWTHS NOT CHARACTERISTIC OF SEX.

I had occasion to see, some years since, a child which had at birth a patch of hair on the shoulder, which when the child was about four years of age was nearly as large as the palm of a small hand; the hair was fawn colour, and in thickness and length closely resembled the hair of that animal; indeed, the patch looked very much like a piece of fawn-skin in its natural state. This was attributed by the mother to her having been startled by a fawn which unexpectedly skipped by her. She states that at the moment she involuntarily raised her hand, and touched the part of her shoulder corresponding to that on which the patch of hair described grew.

M. M. R. Villerme speaks of a child which had several patches of hair on its person. He says:—"J'ai vu, à Poitiers en 1808, un malheureux enfant de six à huit ans, qui avait un grand nombre de ces marques disposées en plaques brunes saillantes, de grandeur diverse, éparses sur tout le corps a l'exception des pieds et des mains; et qui étaient toutes couvertes de poils plus courts et moins gros que ceux du sanglier, mais qui avaient de l'analogie avec eux. Ces poils et les marques sur lesquelles ils naissaient ccupaient peut-être, un cinquième de la surface du corps."—*Dictionnaire des Sciences Médicales*, vol. xliii., Art. Poil, p. 509.

Dr. F. Bird mentioned to me the case quoted by Dr. Cummin, in his "Lectures on Forensic Medicine." It was published first at Venice, in 1815, and was much discussed in the German journals soon after. In the course of legal proceedings it transpired, that "a lady of twenty-seven, much admired for her beauty, had, on her person, from the breast to the knees, a profusion of black, thick, and bristly hair.[*]"

A case is recorded by Mr. South, of a male child, "John Sparrow, born (Sept. 6, 1818) at Longford, in Suffolk, . . . who at the time of his birth was completely covered with hair, and the back of his head particularly with black hair, about the length usual to children of four or five months."[†]

Hirsute Growth; characteristic of sex, but apparently accidental.—A very remarkable case is recorded in which a female had not only hair all over her body, but also a very profuse and thick beard, and indeed on every part of her face; the description states that it *was* so, and is accompanied by an engraving representing it as being so. It is to be inferred, however, that the limbs were not in the same state, as the hands and forearms are represented as being free. "In the year 1655 was publicly shown, for money, a woman named Augustina-Barbara, the daughter of Balthazar Ursler, then in her twenty-second year. Her whole body, and even her face, was covered with curled hair, of a yellow colour, and very soft, like wool; she had, besides, a thick beard that reached to her girdle, and from her ears hung long tufts of yellowish hair. She had been married above a year, but then had no issue. Her husband's name was Vaubeck; he is said to have married her merely to make a show of her, for which purpose he travelled into various countries, and among others visited England." This account of her is published amongst the "Portraits, Memoirs, and Characters of Remarkable Persons, from the reign of Edward the Third to the Revolution," by Mr. James Caulfield. He proceeds to say, "If I conjecture right, she is that very hairy girl mentioned by Bartoline, and appears to me not to differ from her whom Borelli describes by the name of Barba; who, he believed, improved, if not procured that hairiness by art. But whether she is the same that the famous Vitrilius saw at Rome and Milan I dare not affirm, for he hath nowhere memtioned this countrywoman of his that I know of."

DISLOCATION OF BOTH HUMERI, WITH FRACTURE OF THE FEMUR.

By Charles S. Webber, Esq., M.R.C.S.

The publication of cases similar to those of Mr. W. H. Smith[‡] is not, I think, without its value, inasmuch as, by affording opportunity for the register of such facts as in all probability would not be recorded in a more formal manner, it tends to the advancement of our statistical information, the practical bearing of which in surgery, as well as in other sciences, is daily becoming more generally recognised. It is upon this plea that I beg leave to contribute another instance of that somewhat rare accident, the simultaneous dislocation of both humeri.

The patient was an Irish labourer, named William H——, twenty-six years of age, of large build and tolerably muscular frame, who was brought into Guy's Hospital, at three A.M. of the 3rd December, 1836, when I was resident dresser to the late Mr.

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[*] London Medical Gazette, vol. xix. 1836-7. p. 263.

[†] Medico-Chirurgical Transaction, vol. xii. p. 76

[‡] Lancet, June No., p. 449.

Morgan, at that institution. The account given by the man was, that having come over to England for work, and approaching London after nightfall the previous evening, without the means of obtaining a lodging, he betook himself to a saw-yard in the neighbourhood of the Old Kent-road, and climbed a stack of wood for the purpose. From this situation it appeared he fell over, during sleep, on the opposite side into a narrow space between two piles of timber, in such a manner that his arms were struck upwards in his descent. When admitted, the nature of the accident was unequivocal, the *left* humerus (if I recollect rightly) being thrown into the axilla, the *right* forwards under the clavicle; the thigh of this side was also fractured. I reduced the dislocations with the heel; the man was necessarily an in-patient for some weeks during the union of his fracture, (a simple one,) but he soon recovered the perfect use of both his arms.

Mr. Knowles, at that time dresser to Mr. Key, and Mr. Hills, of Guy's Hospital, were both present at the reduction, and will, I have no doubt, remember the case.

DISPLACEMENT OF BOTH HUMERI.

By Hamerton Greenwood, Esq., Bradford.

Cases of simultaneous dislocation of both humeri have lately appeared in The Lancet, but it is not stated whether a previous luxation had occurred. The accompanying case came under my notice a short time since.

Dec. 9th, 1851.—Ephraim R——, aged twenty-seven, about the middle height, and very muscular, had been drinking with some companions: as they were going home, and in the vicinity of the hospital, he slipped over some orange-peel, fell on his back upon the pavement, and on his companions picking him up, wished to be taken *to* the infirmary immediately, as both arms were put out. When he was brought into the accident room, I found both humeri dislocated into the axilla; he being very faint, I at once reduced them, without much trouble, by placing the knee in the axilla, the patient being seated on a bench, one hand on the shoulder, to fix the scapula, the other depressing the elbow over the knee; the left arm I had previously reduced once some six months previously, that being the first time of its occurrence, but the right had been luxated ten or eleven times.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, April 27, 1852.—Mr. Hodgson, Pres.

Remarks on Hydrophobia. By B. E. Brodhurst, M.R.C.S.

The author observed that it was to *hydrophobia rabiosa*, or that disease which arose from inoculation with the saliva of a rabid animal, in contradistinction to *hydrophobia simplex*, that he was desirous of directing attention. Hydrophobia was a disease properly of the canine race, and did not arise spontaneously in man; but it was communicable to him from all rabid animals. There was no instance on record of the disease being communicated from man to man, although experiment proved that it could be transmitted from man to animals. There appeared to be a peculiar predisposition in the canine race to this disease. The author was inclined to believe that the disease occasionally arose spontaneously in the dog, although Mr. Youatt had expressed a contrary opinion, to the effect that it was propagated by inoculation alone. The author was led to the opinion opposed to that of Mr. Youatt by observing that rabies was extremely rare in the south of Europe among the native dogs, but that it was by no means an unfrequent occurrence for an English dog to become rabid when taken to the south. The author considered that diet exercised a marked influence: that if a dog be allowed a diet principally of animal matter during the summer, he would almost certainly die hydrophobic. This applied equally to English and native dogs. Extreme cold and privation, however, also favoured the development of the disease, and seemed to be the most frequent cause of the malady among wolves. The author then proceeded to detail the more prominent symptoms produced on man by the bite of a rabid animal, as well as the periods within which they were usually developed. The wound healed without any peculiar indications, just as a similar bite by a healthy animal would heal; but at some uncertain period, often extending to forty or sixty days, pain was felt in the course of the nerves of the limb, and might be taken as the first positive indication of the approach of hydrophobia. Disturbance of the general health sometimes preceded this stage; the cicatrized wound became a sore. General nervous irritability and other manifestations of cerebral disorder, with mental emotions of fear and unnecessary dread on the approach of persons; hallucination, spectral illusions, inordinate and disordered sensibility of the skin, with morbid increase of acuteness in the organs of special sense, were among the most characteristic signs of the confirmed disease. The author, who had witnessed three cases of hydrophobia, proceeded to relate the particulars of one which occurred in Vienna to a man sixty-four years of age, a farrier, who was bitten in the palm. The wound healed, and it was not till the forty-second day from the injury, after a debauch, that the patient awoke feverish, and with an aversion to water. He was removed to the hospital under Professor Schuh. Various remedies were tried: cantharis, opium, belladonna. Tetanic spasms, of which opisthotonos was the expressive feature, came on. The convulsions continued, and, agitated with emotions of intense fear, he died. The body was examined by Rokitansky. The membranes, as well as the substance of the brain, were congested; the arachnoid opalescent; the bronchial and pulmonary mucous surfaces deeply congested; and the lungs remarkably engorged. The heart was empty, and the blood was fluid in the vessels; the mucous membrane of the kidneys and ureters congested. The bladder was pale, and all the other viscera healthy. The author stated that the characteristic morbid appearance in the dog was an injected condition of the medulla oblongata and its membranes. But Rokitansky had stated, at the time of the above examination, that of the many cases he had examined, he had never found any appearances in the medulla oblongata which he could connect with the spasm. The author then directed attention to the *certainty* of the action of the saliva of a rabid animal when once introduced into the blood: not less certain, indeed, than that of a venomous serpent, though the period of its incubation was much longer. Although he admitted that one-third of those bitten might not manifest any symptoms, whereas the bite of a poisonous reptile was immediately followed by palpable effects, yet this immunity might be explained by the virus being wiped from the tooth before it penetrated, in the bite of a dog; while in a serpent the venom only exudes when the mandibular pressure ceases to be made. The author believed, that as hydrophobia was primarily a blood disease, the presence of another blood disease, such as syphilis or variola, might arrest the hydrophobic poison. He regarded it as proved beyond doubt that symptoms of hydrophobia had been arrested and suspended by variola; for hydrophobia could only develop itself after another poison, that might have been present at the period of inoculation, should have run its course. He rejected the doctrine that the rabid poison could lie in a wound, and neither irritate nor be absorbed. It had been stated by writers that the period of recrudescence was the commencement of the malady, the period of delitescence being overlooked. It was thus supposed that the poison could lurk in the wound, and that it was capable of being removed by excision at any time prior to the state of recrudescence. This disease, once developed, appeared necessarily fatal; treatment therefore, to be effectual, should be vigorous and energetic in the primary or preventive period; and the author conceived, that as in variola its course might be retarded and its intensity modified by substituting another poison, which had a certain affinity for the blood, so might it be hoped that the hydrophobic poison might be rendered amenable to medical aid through the agency of mineral or animal matter. He mentioned the powerful effects on the blood of arsenic and mercury, and thought that one or other of these remedies, administered *ab initio*, might be productive of happy results. The author referred to the successful cases recorded by Wendt in the Breslau Hospital, where salivation appeared to have been practised with success, and where means were also used to remove the virus locally from the wound. The author, in conclusion, considered that the patient should remain under active treatment in every case from forty to sixty days; the influence of the mineral should be rapidly obtained and continued, so that a positive change might be effected in the blood, and the condition which favoured the hydrophobic virus destroyed.

Dr. **Webster** coincided with the author respecting the greater frequency of hydrophobia in cold, compared with warm climates. In the north of Europe this disease was much more prevalent than throughout Italy or France. In northern Germany, especially Prussia, he (Dr. Webster) could speak from his own knowledge—acquired when residing at Berlin—as to the marked ravages it produced in that country, which medical men chiefly ascribed to famished wolves coming from the forests of Poland during severe winters, and biting village dogs, that afterwards spread the malady. Mr. Brodhurst had alluded to an outbreak of this terrible scourge in Stockholm last winter, and he would also state that, about the beginning of the current year, it prevailed like an epidemic in Altona and Hamburgh, besides several places in Holstein, whereby a number of persons died; whilst cows and horses, but particularly the latter, were often attacked. Although less common in warm regions, the complaint prevailed at times in those latitudes; and he might mention that, whilst travelling in Italy many years ago, several fatal cases occurred, one being a priest, who was bitten by a goat. Further, hydrophobia was very common last February in the department of the lower Loire—of which Nantes is the chief town—amongst dogs, cats, and cows. Besides such facts, only that morning the newspapers reported the case of a physician practising at Valence, on the Rhone, who died from hydrophobia early in this month. Contrasted with these statements, indicating considerable prevalence of canine madness on the continent, it becomes highly satisfactory to find the disease was now much more rare in London than formerly, only two fatal examples having appeared since 1846 throughout the whole metropolis, whereas sixteen deaths were recorded during the seven previous years. This recent remarkable immunity, he thought, may be justly attributed to Mr. Fox Maule's act, which interdicted dogs being employed in drawing carts, whereby hydrophobia was said to be often produced in these animals. Mr. Brodhurst's notion of the blood becoming vitiated by the absorption of hydrophobic virus was not altogether new, although his recommendation of mercury, in order to counteract its deleterious influence, appeared more novel. For instance, a Polish physician—Dr. Czajewski—read an interesting paper before the medical section of the scientific Congress of France, which assembled at Orleans last autumn, advocating somewhat similar views; but the treatment he employed was very different. That authority advised copious bleedings every four or five days, until deliquium followed, so that before any serious symptoms supervened, all morbific taint being eliminated from the patient's blood, recovery might be more confidently anticipated. Notwithstanding various specifics for this incurable disease have been occasionally vaunted, none ever stood the test of experience, whether it was by excising the sublingual gland, reported some years ago as beneficial in Russia, or the vegetable discovered by a French traveller in Abyssinia, but now forgotten. After making one or two additional remarks, Dr. Webster said, in conclusion, having seen three fatal cases of hydrophobia, and believing every kind of treatment hitherto employed has proved utterly inefficacious, he therefore considered the author's proposal of administering mercury in order to neutralize the poison deserved consideration.

Mr. **Mitchell Henry** inquired the experience of the members of the Society as to the time when the disease developed itself after the reception of the poison? Some of the accounts having reference to this matter appeared almost fabulous.

Dr. **James Bird** had seen only two cases of the disease, and these occurred in Bombay. One of the persons affected was a Sepoy, a stout, muscular man; the other was an English officer. The first was affected with the disease twelve months, the other six weeks, after having been bitten. In the case of the Sepoy, the bitten part appeared to be affected with neuritis. There was a little tubercle at the cicatrix, which, when touched, threw the patient into convulsions. Mercury, given to ptyalism, appeared to relieve the violence of the symptoms, but it was administered in conjunction with enemata of tobacco, and hence it was difficult to determine to which agent the relief of the spasms was to be referred. He died at the end of six or seven days. The officer died on the third or fourth day.

Dr. **Theophilus Thompson** recollected a case which had been mentioned to him by the late Mr. Hunter, of Islington, of a servant girl who had been bitten by a rabid animal. The symptoms of hydrophobia developed themselves a week afterwards. An effect similar to that observed in Dr. Bird's case was produced by touching the cicatrix, the girl becoming immediately convulsed. An incision through the skin was made round the cicatrix, and then pressure exerted no injurious influence She died ultimately of the disease. This case, as well as that of Dr. Bird, was rather unfavourable to the theory of the disease being dependent upon a morbid condition of the blood. Mr. Youatt had placed much confidence in the administration of a mixture of belladonna with scutularis, as a preventitive of the disease in dogs, after they had been bitten by a rabid animal. Mr. Youatt had made an extensive series of experiments with this mixture, and the result had convinced him that it had some prophylactic power. With respect to the theory of the disease being dependent upon an altered condition of the blood, he might mention a certain train of symptoms, which resulted from the bite of a cat not in a rabid state. These consisted of wasting of the muscles, contraction, spasm, and neuralgia. There was enough of analogy in these two conditions to show an argument against the blood theory, as they showed a more local cause to be at work.

Mr. Hodgson had seen the case of a poor man, some years since, affected with hydrophobia, who had taken belladonna to a great extent without any beneficial effect. There were one or two points in the paper which gave rise to interesting suggestions. 1st. Was the disease as invariably fatal in the dog as the man? He had, some years since, made inquiries upon this point amongst the keepers of fox-hounds, veterinary surgeons, and others likely to be well informed on the matter. All of these agreed, that when attacked with hydrophobia the dogs invariably died. They all died also within a fortnight of the time of the accession of the symptoms. This was an important circumstance, because it was considered that if a person were bitten by a dog supposed to be rabid, the circumstance of the dog's living beyond the fortnight was regarded as an evidence of the safety of the bitten person. There was another practical point in the paper to which he would refer. He had seen a case some years since, which seemed to show that excision of the bitten part, at any time previous to the accession of the disease, would prevent its occurrence. A rabid dog bit two children, and afterwards their father in his bare arm. One child was bitten in the leg, the other in the shoulder; all slightly. The child that was bitten second was seized with hydrophobia. After this the father and the other child had the parts excised. They remained free from the disease. This fact was important, so far as it went; it would be observed that the middle one bitten died, so that the dog must have been mad when it bit the third person. In all the inquiries he had made in reference to the effect of excision of the bitten parts, he could not hear of a single instance in which the disease had appeared in a bitten person after the above precaution had been taken.

Dr. T. Thompson wished to explain that in Mr. Youatt's case the belladonna had been given as a prophylactic and not as a curative agent. Two persons who had been bitten by the same dog as the servant at Islington, whose case he had referred to, had had the parts excised a considerable time after being bitten; they escaped. The servant girl would not submit to such a proceeding, and suffered from the disease.

May 11, 1852.

A Case of Hæmorrhage from Inversion of the Uterus in which the Operation of Transfusion was successfully performed. With Remarks on the Employment of Transfusion generally. By John Soden, Surgeon to the Bath General Hospital.

The author begins by expressing his belief that the evidence in favour of transfusion is not generally known, and that false notions prevail with respect to its dangerous character. Having had an opportunity three years ago of proving its power, he was induced to examine into the results of all the recorded cases, and has presented a table of thirty-six in which the operation was performed in connexion with the puerpal state. The thirty-sixth case was that in which transfusion was performed by the author. A lady was delivered of her third child rapidly, and the latter pains were so severe that the uterus was violently emptied of its contents, and became inverted; a gush of blood ensued, and the patient fainted. The placenta was detached, and the uterus returned: no further hæmorrhage took place. In half an hour the patient had not rallied, and was insensible, cold, pulseless, and exsanguine in appearance; the breathing was at long intervals, stertorous, and jerking. She could just swallow stimulants by teaspoonfuls at a time, and every other means were used to restore her. After about an hour she became, however, worse; was no longer able to swallow, and the respiration became more rare and stertorous. Transfusion was now had recourse to. The opening was made in the external cephalic vein, and blood drawn from the husband was injected by means of an ordinary syringe of German silver, with a detached stop-cock, previously well warmed. At first the blood would not pass, but returned through the opening in the vein; presently the opposition, from the contact of the coats of the vein, seemed to give way, and the blood, though impelled by a steady and moderate pressure, rushed rapidly up the vein. The effect was instantaneous; a convulsion seized the whole frame, and the muscles of the face were frightfully distorted: not more than an ounce was injected. The convulsion soon passed off, and the patient gradually recovered; it was full an hour before any pulse could be felt at the wrist, and she did not recover consciousness till the following morning. During this time stimulants were continually given; she remained for some time in a weak condition, but has since had another child, and is now doing well. The author then proceeds to analyse the table of cases, which shows that out of thirty-six cases, twenty-nine were recovered from imminent danger, and it does not appear that in the fatal cases death was due to or hastened by the operation. In two, it may be presumed that death had occurred before the operation was performed; in a third, only a small quantity of blood could be procured; in a fourth no effect; in the fifth, there were marked but not permanent effects; in the sixth and seventh, the women were too much reduced to be restored. The author considers the influence of the blood injected not to arise from the mere mechanical effect on the heart, but from a direct stimulation of the nervous system, and that the rapidity of the effect is modified greatly by the circumstances of the case, as regards previous duration and cause of exhaustion, and by the character of the means used, as regards quantity, quality, and the mode of operating. With regard to quantity, it appears that a lesser amount was needed in proportion as the exhaustion arose from the suddenness rather than the amount of the bleeding. The author thinks that some cases have been lost from a fear of introducing too much blood, the dangers of which, he thinks, have been over-estimated. The quality of the fluid he regards as of great importance, and he alludes to the impropriety of using the blood of the lower animals. The blood need not be drawn from one individual only; that drawn from many may be taken, but it should be the blood of healthy persons. The want of success attending Dr. Simpson's cases of saline injection in uterine hæmorrhage he attributes to the nature of the fluid used, while the same fluid might be serviceable in cholera, where the quality as well as quantity of the blood is interfered with. With regard to the mode of performing the operation, the author believes that a simple syringe, with a detached stop-cock, plated or tinned on the inside, and capable of holding about three ounces, is the best instrument. The more complicated instruments, constructed to guard against the admission of air, he considers needless, as the danger is an imaginary one. In one case the operation was successfully performed with a common toy syringe. The operation should, however, be performed at the arm or in some distant vein, in preference to the neck, where there might be some risk from the entrance of air. The convulsions which arose in the author's own case, he attributes, not to any irritating quality in the blood injected, but to the transition of the patient from a state of coma to that of syncope; the same thing was noticed in one case three times on the exhibition of stimulants only, and before transfusion was performed. The author then proceeds to notice the opinions of writers on the subject of the treatment of uterine hæmorrhage, and concludes by making a few remarks on the general application of transfusion, which has been equally beneficial in cases of hæmorrhage from other causes, and in exhaustion from inanition. It has been, too, of temporary service in phthisis and in cancer of the stomach. Its use is suggested in the collapse of typhus and in the diarrhœa of children, where exhaustion is threatened.

In reply to a question put to him by the President, Dr. Lee said that he had never seen transfusion of blood employed in any case of uterine hæmorrhage. Having so often of late intruded on the time and attention of the Society, he said he would forbear at present making any further observations on the subject, and now sit down. The Society having expressed desire that Dr. Lee should state his views on transfusion as a resource in uterine hæmorrhage, he proceeded to observe that in none of the varieties of flooding could he place much dependence on transfusion, and he did not believe that in the case now related to the Society the recovery of the patient could be referred to the introduction of an ounce of blood into the venous system. In accidental uterine hæmorrhage, if the membranes be early ruptured, and where this fails, delivery is completed speedily by turning the forceps, or craniotomy, and all the means in our power employed to secure uterine contraction, comparatively few women perish; and he (Dr. Lee) had seen some recover where the symptoms were of the most alarming character, and recovery appeared absolutely impossible. In such cases, had transfusion been employed the recovery would have been referred to it, and not to the real cause, the persevering and vigorous use of the ordinary remedies—pressure over the uterus, the external application of cold, and the internal administration of brandy, wine, and ammonia. In the hæmorrhage which takes place after the uterus has been wholly emptied of its contents, the same remedies, if actively employed, are successful in a large proportion of cases. In most of the fatal cases of this description which he (Dr. Lee) had seen, the common practice of introducing the hand into the uterus to excite it to contraction by rubbing the inner surface, had been employed, and he had likewise seen cases where fatal uterine phlebitis could be referred to the same plan of treatment, which is not efficacious in exciting uterine contraction where great exhaustion exists from previous profuse loss of blood. This practice of rubbing the inner surface of the uterus with the closed fist, is not merely inefficacious in the worst cases of atony of the uterus, but it actually displaces those coagula from the exposed vessels which form one of the principal means which nature employs for the permanent suppression of uterine hæmorrhage. If proper compression be employed over the hypogastrium, coagula can never form to distend the uterus, and, like a foreign body, prevent its contractions. Hæmorrhage to a dangerous extent can never, he believed, take place where the uterus is contracted in the ordinary degree. The danger of uterine hæmorrhage from placental presentation is much greater than in the accidental variety; but the mortality has been very considerably diminished in my practice since I observed the fact, that in rigid conditions of the os uteri it is possible to seize the lower extremities of the child with two fingers, and deliver by turning, without introducing the whole hand through the os uteri. It is deeply to be regretted that an attempt, founded upon a grave anatomical blunder, should have been made to alter the practice established during the last century and a half in unavoidable uterine hæmorrhage. The blood does not proceed from the placenta, as has been asserted, and it is therefore irrational and absurd to recommend tearing it away, or detaching it from the uterus with an iron instrument, and leaving the child within the cavity after being imprudently deprived of life. Some inexperienced practitioners have actually tried this unscientific mode of proceeding. He (Dr. Lee) had great faith in the established rules of practice in all the varieties of uterine hæmorrhage.

On Fibrinous Deposits on the Lining Memrane of Veins. By Henry Lee, Esq.

Simple inflammation of the veins—that is to say, inflammation commencing in the coats of the veins—is regarded by the author as a very rare disease. The internal lining of veins especially would appear to be as little susceptible of inflammation as any structure in the body. The large number of instances of phlebitis met with in surgical works, and occurring in daily practice, are regarded by the author as depending upon, and as being excited by, a vitiated condition of the blood. This opinion is principally supported by the two following facts: first, that in every case of so-called inflammation of the veins, the blood will be found to have coagulated in the vessels; and, secondly, that where such coagulation does not take place, no inflammation will be produced. Continental writers of the highest reputation have, indeed, mentioned the concentric layers of lymph which are secreted as the result of inflammation in the interior of veins; and English writers whose names carry with them the greater authority have described the adhesion of the opposed sides of veins by lymph secreted from the capillaries under a state of inflammation. The advocates of this view have particularly referred to an experiment of M. Gendrin, in which he mentions, that by introducing irritating substances into the arteries and veins, he obtained large deposits of lymph upon their interior. The author, on the contrary, having found that inflammation of the coats of the veins only occurred in cases where the blood has previously coagulated in them, was induced to believe that the deposit found in the veins might be derived directly from the blood. M. Gendrin's experiment was therefore repeated, precautions being taken to exclude all blood from the vessel; and it was found that under these circumstances no lymph was effused in the vein. The lining membrane of the veins does not contain any bloodvessels of its own, nor does it require any, being in direct contact with the blood. It appears reasonable to suppose, that under such circumstances it would not secrete lymph, and the experiments and observation of the author lead him to this conclusion. The lining membrane of a vein, the outer coats of which are inflamed, may undergo various changes, or may be disintegrated, and cast off into the cavity of the vessel. Lymph and pus may then be secreted into the interior of the canal; but this can only occur in the latter stages of the disease. The readiness with which some morbid poisons produce the coagulation of the blood, and the constancy with which such coagulation (indicated by the cord-like induration of the vessel) is found to precede the other symptoms of inflammation, lead to the conclusion that a vitiated condition of the blood is the common cause of phlebitis. Under such circumstances, although the irritation produced is caused by the morbid matter detained in the vein, yet the inflammation is at first manifest in the surrounding parts. The cellular tissue becomes distended with serum; the cellular coat of the vein then becomes thickened, red, and inflamed; and finally, the changes which have been noticed extend to the lining membrane. The effects of inflammation thus are shown to extend *to*, and not *from*, the internal surface of veins. M. Cruveilhier, indeed, regards the coagulation of blood in a vessel as the effect of inflammation previously existing. But the author has satisfied himself, that if blood be prevented from stagnating in a vein, no change will there be produced in its lining membrane. The inflammation is not therefore propagated by continuity of surface, as has been generally supposed, but by the stagnation in different parts of vitiated blood. Coagulation of the blood would therefore appear to be the cause, and not the effect, of inflammation of veins. This view is further supported by the fact, that simple adhesive inflammation of a vein will not produce coagulation of its contents. A preparation was exhibited, showing the effects of a ligature upon a vein twenty-four hours before death. No coagulation of the blood, nor deposit of fibrin on the lining membrane, had in this case taken place. The coats of the vein were thrown into folds, and a white band marked the situation of the ligature; but the projecting folds of the lining membrane presented their natural smooth, polished, and lubricated appearance. Healthy venous blood will remain fluid for days, when confined in a vein by a ligature. In this respect there is a contrast between a vein and an artery. In the latter case, the internal coats are divided, and the blood, coming in contact with the divided edges, immediately coagulates. In the vein, on the contrary, the lining membrane is not divided, and therefore the blood remains in contact only with the natural lining of the vessel. Cases in which a small quantity of pus has been introduced into a vein, afford the strongest contrast to those in which the coats have been mechanically irritated. In the latter case, no coagulum will form, or one only sufficient to unite any lesion there may be of the lining membrane. In the former, on the contrary, extensive fibrinous plugs will occupy the vessels. These will sometimes occupy the whole diameter of the vein, and become firmly attached to its sides; at other times, the outer layers only will become firmly coagulated, and the central ones will remain in a semi-fluid condition. It will sometimes happen that the central portions will be removed, leaving the outer layers attached to the walls of the vessel. The circulation may then be continued through an adventitious cylinder of fibrin. Cases occasionally occur, in which a delicate velvety layer only is deposited on the lining membrane, which remains unaltered in appearance in other parts. The coagula which form in veins will, under such circumstances, lose, in different situations, much of their colouring matter; and it will be observed that the lining membrane of the vein is coloured (from imbibition) in exact proportion to the amount of colouring matter contained in the different parts of coagula. It will occasionally happen that portions of the decolorized fibrin will become organized and intimately connected with the sides of the veins, as illustrated in a preparation exhibited to the Society. Such layers of fibrin appear constantly to have been mistaken for lymph, the product of inflammation. The extreme readiness with which the blood coagulates from the contact of purulent matter, affords a most important provision for the security of the gene system. It appears to depend upon a faculty wi which the blood is endowed for its self-preservati This faculty, although hitherto unacknowledged physiologists, doubtless exists, and is comparable the preservative sensibility with which every oth part of a living being is endowed. When purule fluid is introduced into a vein, if the coagula a firmly formed, a local inflammation will alone ensu but if the morbid matter extends along the vessel a high degree of constitutional irritation will follow, and the symptoms will occasionally bear a striking resemblance to those of typhus fever. In cases as they present themselves in practice, these two sets of symptoms are constantly present at the same time; they may be produced separately by a very simple experiment: if, for instance, purulent fluid be introduced into a vein, and allowed to remain undisturbed, a local inflammation only will be set up, which will terminate in the formation of an abscess around the vein. The contents of the vein will then become softened, and expelled externally, together with the contents of the abscess. But if the morbid matter be forced forward, in the course of the circulation, no local inflammation will occur, but the symptoms will indicate either the presence of secondary inflammation in some internal part, or of a general contamination of the blood. If the view taken of the origin of inflammation of the veins be correct, it will be evident that any treatment, to be effectual, must have reference to the first periods of the disease; and that those remedies will most effectually guard the system against the contamination, (so much dreaded in this class of cases,) which will favour the sequestration of vitiated blood, and tend to localize the disease. The remedies which have been employed to subdue the local inflammation, appear but too often to have done so at the expense of the general system; for although the local symptoms have become less prominent, fatal mischief has appeared in other parts. In severe cases, those remedies only can be safely employed which tend to preserve the power of blood, and especially those which increase its coagulating power, so as to enable it to separate that portion which has become infected from the general circulation. Bark and opium, together with a nutritious diet, are the means which appear to favour these actions, upon the due performance of which the safety of the patient depends; while bleeding and calomel, however useful they might be in a case of simple inflammation of the coats of a vein, appear inadmissible when the disease, as generally happens, originates in its contents.

CASE OF INVERSION OF THE UTERUS AFTER PARTURITION PROVING FATAL IN EIGHTEEN MONTHS, WITH A TABULAR STATEMENT OF THE RESULTS OF CASES TREATED BY OPERATION. BY J. G. FORBES, ESQ.

The patient, a lady, twenty five years of age, came under the care of Dr. Robert Lee, and the author in December, 1850, being in appearance intensely anæmic, and suffering from the usual symptoms attendant upon this state, as well as from periodical attacks of profuse uterine hæmorrhage. On examination per vaginam, a tumour of a pyramidal shape was detected projecting for about two inches through the os uteri, with which it appeared in close connexion throughout its entire circumference. Her confinement had taken place in the country in April of the same year, and an account of it was furnished to the author by her medical attendants. Owing to the cessation of pain, ergot was administered, the os being fully dilated; and a loop of the cord having descended in advance of the head, the forceps were employed to complete the delivery. The infant was still-born.

Nothing unusual was apprehended until several days after the labour, when the patient stated that during the action of the bowels on the third day "something had come down." It was now discovered that the uterus was inverted, having descended to within an inch or two of the labia. Re-inversion was found to be impracticable. Slight sanguineous discharge continued up to the 12th July, on which day profuse hæmorrhage took place. This recurred afterwards at each catamenial period, the discharge being often of a serous character, and was accompanied with hysteria, headache, vomiting, constipation, and great exhaustion. On the 18th December, Dr. Locock was called in consultation, and the propriety of applying a ligature around the tumour for the purpose of extirpating it was discussed, but owing to the diminution of hæmorrhage at that time it was not done. The pain produced by pressure on the tumour, precluded all hope of accomplishing its reduction. The treatment adopted was therefore only palliative. In April, 1851, the patient returned to the country, when, after the lapse of some months, her health began to improve. The hæmorrhage also ceased, for the last three catamenial periods of her life were passed over with only a moderate amount of discharge. The period which commenced early in November was attended with intense headache, which, in spite of remedies, increased; erysipelatous redness of one side of the head and neck came on, and the patient gradually passed into a state of coma, under which she sank and died on the 10th inst. A post-mortem examination disclosed incomplete inversion of the uterus, the tumour not being constricted by the os. The left ovary was enlarged, and contained a cyst filled with sanguineous fluid. The paper then contained some remarks on the question of attempting the extirpation of the inverted uterus in such cases by operation, a few observations being made, first on those cases in which no operative proceeding was resorted to, and then upon the several modes of operating which have been practised, and their results. Some cases, it was stated, underwent spontaneous re-inversion, and in others the vitality of the tumour was destroyed by inflammation or by the constriction of the os uteri, and the patients recovered. The difficulty in accomplishing the reduction of the uterus after the lapse of a few hours, was then spoken of, and a few cases were quoted in which it was effected at later periods. The duration of life under inversion of the uterus was then considered, and Mr. Crosse's statistics were referred to. Cases in which extirpation of the uterus was performed by excision, a ligature alone, and by both combined, were next quoted, and a summary was given of the table appended to the paper. In the latter, which contained brief details of thirty-three cases, collected from different sources, it appeared that nineteen were successfully treated by ligature, and five unsuccessfully (three died;) one successfully and two unsuccessfully by excision; and five successfully and one unsuccessfully by ligature and excision combined. The paper was concluded by a general statement of the treatment pursued in the case detailed.

After a pause,

Mr. Hodgson rose, and said that he trusted a paper of so much importance would be discussed. Some years since he had seen a patient somewhat in the condition described in Mr. Forbes's case; but the inversion was more complete, the parts presenting externally in the shape of a small pyriform tumour, from which there was continual bleeding, increased at the catamenial periods. He recommended its removal, but the patient would not consent, and died twelve months afterwards, of consumption. When this case had occurred to him, he had found great difficulty in procuring any definite information as to the mode of treatment by referring to books. Had such a table as that appended to Mr. Forbes's paper existed at the time, it would have saved him much trouble, and he should have treated the case with more confidence. But the only information he could procure at that time was scattered over various works, Mr. Crosse's book not having yet been published.

Mr. Arnott could give but little information on the subject of the disease; these displacements were rare, but it was desirable that the personal experience of members should be stated. This, indeed, was the chief object of their assembling to hear a paper. He had seen two cases of inversion of the uterus, but these would not enable him to speak decidedly on the more important point in Mr. Forbes's paper—viz., the propriety or non-propriety of interference by operation in these cases. He trusted that other Fellows of the Society would communicate their experience upon this matter. Three years since, he was consulted on a case, which was supposed to be a polypus of the uterus by a distinguished accoucheur who suggested its removal. Two other gentlemen had also been consulted: one pronounced the case to be polypus, the other suspected it to be inversion of the womb. With this latter opinion he (Mr. Arnott) agreed. The history of the case was simple:—The woman was twenty-seven years of age, and had been confined twelve months previously. There was some tugging at the navel string, but after three tugs it came away. There was not excessive hæmorrhage at the time, but more or less bleeding continued for four months, at the end of which time an examination was made, none having been instituted before; and then a difference of opinion existed as to the presence of a growth, or of inversion of the uterus. A ligature, however, was applied, and the bleeding ceased. The woman did not get well, suffered much at the menstrual period, and on laughing or making any exertion, something protruded from the vagina. She now came to London, and he (Mr. Arnott) saw her under the circumstances above mentioned. On the first examination, the tumour had every appearance of a polypus of about the size of a goose's egg, firm, with a pedicle. There was an offensive discharge, not menstrual, which had continued for seven weeks, but there was little difference in the sensibitity of the part. He doubted if it was a polypus, but thought it might be so. He felt the pedicle encircled by the os uteri. The surface was livid at some portions, and tender at one part. This was not sufficient to determine that it was not a polypus. Another opinion was now sought in the case, and the accoucheur called in pronounced it to be a polypus. It was now determined that the patient should be placed under chloroform, the tumour brought down, and if a polypus, that it should be removed. When brought down, the tumour exactly resembled a polypus, and on passing the finger into the bowel, what was supposed to be the uterus could be distinctly felt in the rectum. Mr. Arnott, however, was determined to act with caution, and therefore made an incision into the pedicle, when it was at once detected to be an inverted uterus. A ligature was applied, but as hæmorrhage continued below its seat, another, and even a third, was used before the bleeding ceased. The parts were then returned. The woman died of peritonitis. This case showed the necessity of caution in our diagnosis of these cases, and the difficulty there was of restraining hæmorrhage. Now, what was the tumour felt through the rectum when the tumour was down? This was no doubt the bulging out of the neck of the uterus, as if it were the whole body of that organ. This case constituted his sole experience of these cases. Before the occurrence of the one he had just related, he had considered that the best mode of proceeding was to tighten the ligature at once, but now he thought the employment of a metallic ligature preferable, which should be slowly tightened. Experience, however, was wanted on this point. It was not easy to procure adhesion in these cases, and hence it had been thought better to tighten the ligature at once. He had seen another case in which there was copious bleeding, and an operation was suggested; the patient would not consent, and died worn out.

Dr. MURPHY made some remarks on the difficulty of diagnosis in these cases, and mentioned an instance related by Velpeau, in which a polypus was mistaken for inverted uterus. The accident was usually the result of want of attention in the first instance, and never occurred in the hospitals of Dublin and the continent, where great care was employed. In the cases recorded, there was some obscurity as to the progress of the last labour and the cause of the displacement. He related a case recorded by Mr. Crosse, and occurring in the practice of Mr. Martineau, at Norwich, to show that, by early and judicious treatment, the displacement might be remedied. In this instance a lady, whose labours were remarkably rapid, was seized with a violent pain whilst standing up, by which the child was expelled. She had severe pains afterwards, and on a careful examination being instituted the uterus was found to be partially inverted, and was replaced. If the uterus became quite inverted it was most difficult to replace it, from the great contraction which existed. Much mischief might ensue from persevering attempts to reduce the displacement. It was mentioned, in some cases, that the uterus had gradually restored itself to its right position, but he, Dr. Murphy, believed that, in these cases, it was simply a reduction in the size of the tumour, and not a replacement. If the first few hours passed after the accident, and the uterus was not restored, it was impossible to replace it by mechanical means. Then the question presented itself, is it desirable to remove the uterus, or to leave the case to nature? On this point it was a mere balance of the chances of life. He could not help thinking, however, that with further improvements in surgery the organ would be removed as easily as any other. Dr. Johnson, of Dublin, had operated twice or thrice successfully. He employed silver ligatures.

Dr. WILLIAM MERRIMAN related the case of a lady who had been attended by his father for supposed polypus of the uterus, but which turned out to be inversion of that organ. The patient was operated upon by ligature, but died. The chances of life were about equal when an operation was performed, as when it was not. He inquired if any attempts had been made to reduce the inversion in Mr. Forbes's case whilst the patient was under chloroform.

Mr. BARLOW recollected a case which occurred in his father's practice, of a patient who had extensive inversion of the uterus, and which was replaced.

Dr. TYLER SMITH was sorry to hear Dr. Murphy attribute the occurrence of inversion in all cases to some fault on the part of the medical attendant. He was convinced it might occur without any negligence or interference on the part of the accoucheur to account for it. The uterus had been known to invert itself suddenly after labour, when the woman was lying perfectly still; it had also happened in women who had not been recently delivered; and there were cases on record in which even the virgin uterus had inverted itself spontaneously. An opinion very generally obtained that the uterus is always inverted mechanically by injudicious tugging at the funis, but in this he could not concur. On the contrary, he considered that inversion was usually a muscular act of the uterus itself, similar to the action of the intestine which caused intussusception. He would suggest the use of chloroform in recent cases of inversion, from its power of diminishing uterine contraction, and from having had cases of prolonged retention of the placenta, with spasmodic contraction of the os and cervix uteri, yielding to no other means, which had been overcome, by the use of chloroform. It was melancholy to reflect that a mal-position so slight as that which existed in the preparation upon the table of the Society, should cause almost inevitable death. While listening to the details, it occurred to him whether chloroform would have been serviceable had it been resorted to, when the reduction of the inversion was attempted, with a view to allaying the pain and relaxing the tissues, as had been done in strangulated hernia while applying the taxis. In veterinary practice, inversion of the cornua of the uterus was not an uncommon accident, and recently an instrument had been used, consisting of a ball affixed to a rod, for the purpose of reducing the displacement, and, as it was said, with great success. Some modification of this might probably be of use in obstetric practice, as such an instrument would give the practitioner more command over the uterus than could be exerted by the hand alone.

A long pause having ensued,

Mr. HODGSON said, that he regretted that the interesting case of Mr. Forbes had not given rise to more discussion, particularly as so many experienced accoucheurs were present. In the case which he (Mr. Hodgson) had detailed, the appearances were not likely to lead to a mistake as to the nature of the tumour. It would seem that the operation of removal might be attempted in young persons, but the proceeding was not so justifiable later in life, as the patient became more tolerant of the disease, and the hæmorrhage became gradually lessened. Not only was the operation justifiable in early life, but it would appear to be desirable, as in all cases the patients died when the disease was left alone.

Dr. LOCOCK observed, that cases of inversion of the uterus were very rare, and that it was nearly impossible for any one person to have seen a sufficient number of cases to warrant him drawing any general conclusions, as to treatment, from them. It was necessary, to obtain such a result, to combine the experience of others with one's own. Some points of the discussion were of much interest. First, as to the replacement of the inverted uterus after delivery, and with reference to the time at which it could be effected. In one instance which he had seen, the uterus had been inverted nearly three days before the accident was discovered. It was still very bulky. Efforts were made to replace it, but failed, great pain and vomiting being brought on; and it was feared there might be risk of rupturing the upper part of the vagina itself, so strong were the efforts required to be made. Three or four days afterwards the attempt was renewed, but entirely failed, the parts having become so much contracted. If chloroform were to be resorted to in such a case, it must be employed very soon after the accident, because, when the inversion had existed any length of time, the inverted organ was no longer elastic or spasmodically contracted, but became perfectly solid, and it was nearly impossible to replace it without great danger of rupturing the vagina. To be successful, the effort should be made soon after delivery. In one case he had succeeded in replacing it an hour or an hour and a half after the accident. In proof that the uterus may be inverted spontaneously, he related a case in which the woman had no one near her, and there had been no pulling at the cord. The child lay in the bed, and the umbilical cord was not separated. The uterus, however, was completely inverted. He detached the placenta from the then convex surface of the uterus, which he had no difficulty in replacing. The patient did well. He recollected a lamentable case which had occurred to him about sixteen years ago. He was called, and found two medical men attempting to bring away what they supposed to be the placenta, but which was in reality an inverted uterus. The patient died before he arrived, and all he could do, to save appearances, was to remove the placenta and replace the womb. He had seen five cases of inversion of the uterus; of these, four were preceded by attempts to remove the placenta by pulling at the cord, and the fifth case was the one he referred to as occurring spontaneously, and which he succeeded in replacing. The uterus would also now and then become inverted in consequence of the presence of a polypus. Such a case was related by the late Dr. Hooper. The preparation was, or ought to be, in the museum of St. Thomas's Hospital. In this case the uterus was partially inverted, from the expulsive efforts caused by a polypus little bigger than a small cherry. It could not have been the weight of the polypus, but the irritation produced by it, which caused the inversion. The woman died of uterine hæmorrhage. These were all the particulars of the case with which he was acquainted: the case had occurred in the St. Marylebone Infirmary. He (Dr. Locock) had seen small polypi produce efforts of expulsion similar to those of labour. In one case he had found, on passing the finger, the uterus to be partially inverted from this cause. On removing the polypus the uterus became replaced suddenly, as if with a spring. He thought, with respect to the removal of the uterus in case of chronic inversion, there was much room to doubt its propriety: patients died of anæmia in these cases sometimes, as in Mr. Forbes's cases, and not from the inversion of the uterus alone. The case related by Mr. Arnott was unfavourable for operative procedure. There had been much manipulation before the application of the ligature; there was pain, and the surface of the inverted uterus was coated over by a thick layer of half-purulent lymph of an unhealthy character. The patient herself was not healthy. This therefore was not a fair case to arrive at a decision upon. When, however, we found so many patients lived in comparative comfort after the cessation of menstruation, that so much could be done with styptics and other local measures, as well as by constitutional treatment, an operation should not be lightly resorted to. As to the operation itself, nothing could be easier; and he could not see, with Dr. Murphy, how improvements in surgery could make it safer. The fear was from the peritonæum being involved in it.

Dr. W. Merriman inquired, if in the case of three days' standing, the chloroform, if employed, might not have been successful?

Dr. Locock replied, that his observations applied more particularly to cases of chronic inversion of the uterus. If chloroform had been used in the case he had referred to, it would have prevented the expression of pain, and hence there would have been fear of mischief being done.

Dr. Murphy said, that in his remarks regarding the improvements in surgery influencing the operation, he alluded to the kind of ligature to be used, the period of operation, &c.

Dr. Snow said, that chloroform would undoubtedly be of the greatest advantage in facilitating the reduction of the inverted uterus, by the complete relaxation of the muscular contractility it would cause, in any case that had not existed so long as to be altogether beyond the reach of aid. The pain of the operation would also be prevented: but he could not concur in the objection of Dr. Locock, that the operator would be liable to rupture the vagina by the force he might use, for his own sensations would be a much better guide as to the amount of force he was using, than the cries of the patient. In this, as in other cases, he considered the opinion that an operator required the sensations of his patient to guide him, was erroneous. Many surgeons objected, at first, to the use of anæsthetics in lithotrity, for fear that they should seize the coats of the bladder in the instrument, without knowing it; but the fact was, that if the surgeon were liable to grasp the coats of the bladder, and then to be warned of it by the cries of the patient, the operation would not be safe under any circumtances. These objections were giving way, and chloroform was coming into general use in lithotrity, with the best effects.

Mr. Charles Hawkins remarked, that there was not the slightest fear of seizing the coats of the bladder in the operation for lithotrity; indeed, it was difficult to do so. Chloroform was not recommended, because it was desirable to know how long the patient would bear the operation.

Mr. Quain said, that according to the experience of obstetricians, chloroform, did not interfere with the contractions of the uterus; as it only relieved pain, how could it be useful in reducing the inversion of the uterus?

Dr. Snow said, that nothing was better ascertained than the fact that a full dose of chloroform always completely suspended uterine contraction, however strong it might be; and he had seen cases where the child was turned in utero, with the utmost case, under chloroform, when just before the contractions had been very powerful. He said that he could refer Mr. Hawkins to many passages in print, where the objections that he had mentioned were made respecting the use of chloroform in lithotrity.

MEDICAL SOCIETY OF LONDON.

Saturday, May 1, 1852.—Mr. Bishop in the Chair.

Mr. Dendy alluded to a plan of treatment in lingering labour, which he had employed with success in those cases in which the delay was dependent upon the pressure of the head, the liquor amnii being retained above it, and the "wedge" of the membrane consequently not acting upon the os uteri. He passed a probe beyond the head into the membrane, which he thus ruptured, and expulsive efforts were the immediate result. In these cases, the delay was not consequent upon anteversion of the uterus or mere thickening of the membrane.

Dr. Webster read a paper

ON THE HEALTH OF LONDON DURING THE LAST SIX MONTHS.

Conformably with the plan previously pursued, the author in this report stated that the total deaths registered throughout the metropolis during the half year ending last March were nearly parallel in amount with those recorded during the two similar quarters immediately preceding; the numbers being 28,445 in the former, against 27,954 in the latter period; hence giving an increase of 491 deaths, which difference was, however, entirely confined to the first quarter, an actual diminution of 1019 fatal cases having taken place during the three months terminating on the 27th of March, compared with the same period of 1851, and thereby showing the late season was not insalubrious. This peculiar feature became especially remarkable in the month just quoted, seeing 4787 persons then died throughout the metropolis, whereas during the parallel four weeks of the preceding year, the total mortality amounted to 5478 cases, hence giving a diminution of 691 deaths, or nearly one-seventh, notwithstanding the apparently ungenial weather then constantly prevalent. Amongst the diseases which have proved less mortal throughout the recent two quarters, contrasted with the parallel half-year ending in March, 1851, hooping-cough assumed a prominent position, 825 deaths having been recorded by that cause, instead of 1205. Measles was fatal in 355 cases, in place of 527. Again, by bronchitis 2472 persons died, against 2534; and by pneumonia 1961 deaths were reported instead of 2190; whilst pleurisy proved fatal to 89 individuals, contradistinguished to 102 during the previous similar period. Further, apoplexy caused death in 625 cases, against 646; paralysis in 593 instances, compared with 656; and lastly, delirium tremens terminated fatally in 62 examples, whereas 68 deaths were thereby recorded during the former season, which constituted satisfactory evidence in reference to greater temperance. The author next alluded to several maladies recently manifesting an uniform rate of mortality, of which hæmorrhage, epilepsy, insanity, gout, stone, diabetes, enteritis, and ileus furnished the most marked illustrations, hence showing, however different the constitutions of individuals or the causes of disease may often appear, the actual amount of deaths produced by particular maladies occasionally varies very little amongst the general community resident in London. Subsequently, Dr. Webster discussed at some length those diseases which had exhibited an augmented ratio of deaths. Amongst these, small-pox, scarlatina, and erysipelas, all eruptive complaints, as also carbuncle, received a special notice. By variola 728 persons died recently, instead of 635 in the former parallel half-year. By scarlatina 969 deaths were recorded against 635, and by erysipelas the number of fatal cases amounted to 236, in place of 168; whilst from carbuncle—hitherto of unfrequent occurrence—26 persons died, instead of only 6 instances, during the previous parallel season. It thus appears that small-pox proved unusually severe throughout the whole of last winter, more deaths having been caused by that malignant complaint in London than during any six months of the past twelve years, whereby considerable alarm prevailed in the public mind respecting the protective efficacy of vaccination; but which, Dr. Webster emphatically said, would certainly prevent more effectually the spread of small-pox, were that operation always carefully and properly performed. Consumption, invariably the most deadly disease afflicting mankind throughout this, as many other countries, likewise produced a higher rate of mortality, 3548 deaths by that malady being registered, instead of 3247; thus showing an increase of 301 fatal cases, or 9 27 per cent. Typhus also proved more lethal, 1297 persons having recently died, in place of 1140. By diarrhœa 626 deaths were reported against 539; whilst tabes, peritonitis, hernia, jaundice, and several other complaints, came within the same category. Before concluding this part of his subject, the author especially adverted to the numerous deaths recently occasioned through puerperal fever and child-birth, more females having died than in the former similar half-year; 252 fatal cases by the above causes being enumerated, in contradistinction to 229 previously recorded. Besides these statements, ovarian dropsy was mentioned, from causing death in 26 women, during the past six months, against 17 parallel instances, notwithstanding its often reputed successful treatment by surgical operations. Violent deaths next came under review, by which causes 885 human beings recently perished, in place of 833 during the same six months ending in March, 1851; thus giving an increase of 52 fatal cases through various casualties. When this amount is compared with the number stated to have occurred during the two quarters immediately previous—that is, whilst London was enormously crowded by strangers visiting the Great Exhibition—It became exceedingly interesting and instructive to find the aggregate mortality by violence then recorded only amounted to 731 cases, being an actual diminution of 154 deaths, or more than one-fifth; thereby proving that the lugubrious anticipations entertained at one time by many well-meaning but mistaken persons, respecting the results which that wonderful spectacle might produce upon the health and lives of residents in London, were wholly erroneous. The age of persons who died was subsequently investigated, when it appeared that 12,723 persons died under 15 years, or 44·71 per cent. of the whole mortality; 9571 ranged from that age to 60, being 33·63 per cent.; whilst the remainder, of 6050 individuals, had passed the latter period, of whom many were actually 80 and 90 years old, and some even centenarians. Indeed, instances of great longevity amongst the inhabitants of London seemed so numerous, that however extensive its population, and in spite of various causes inimical to health often prevalent, the capital of Britain still seems one of the most salubrious cities throughout the universe. The author next alluded to the sex of those persons reported to have died recently, of whom the majority were male patients, the respective numbers being 14,411 of that sex against 13,944 females; hence indicating the ratio of mortality ranged lowest in the weakest portion of society, although the excess was calculated at about ten and three-quarter females for every hundred male persons resident within the metropolitan districts. Another important peculiarity afterwards came under notice, which likewise deserves record—namely, the fact of 11.984 more births than deaths having actually taken place in London, which have made a large augmentation, during the last six months, to its aggregate population, wholly irrespective of any immigration, although that source adds considerably every year to the myriads of human beings congregated together in the modern Babylon of England. The mortality recorded in metropolitan eleemosynary institutions was besides investigated by the author, and he stated that more than one-sixth of the entire number, or 16·23 per cent., took place within these establishments, the proportion of male patients being 2627, against 1976 females, thereby making altogether 4603 deaths of both sexes. The fatal cases appeared, however, to be most numerous in workhouses, seeing more than half the total amount, or 2683 persons, died therein, the majority being females, hence indicating such inmates exceeded the other sex in number. At general hospitals, an opposite condition obtained, seeing 804 deaths out of 1227 reported during the last six months were male patients; whilst not more than 423 fatal cases occurred amongst the females under treatment in the above charitable institutions. Several other important questions connected with the recent sanitary condition of London were investigated by Dr. Webster, which it is impossible to particularize in any abstract of his paper; nevertheless, one increased cause of death affecting an interesting portion of the great human family cannot now be overlooked, particularly as its greater frequency of late, compared with former years, shows a large number of lives are annually sacrificed by a prevalent fashion, truly deserving condemnation. This remark was warranted by the numerous deaths reported through the "want of breast-milk"—the natural and best food for infants—which amounted to 141 human beings during the last six months; whereas the total mortality by the same cause did not exceed 107 throughout the parallel two quarters ending in March, 1851. The many grievous evils arising from the common custom of mothers belonging to the lower orders being hired as wet-nurses by members of the middle and upper ranks of society, whereby the offspring of the former become frequently neglected, seem constantly, of late, to augment; since the deaths ascribed to the "want of breast-milk," in 1828, amounted to 171 cases; in 1849, they were 176; in 1850, the number reached 180; and in 1851, so many as 252 instances were reported,—thus making an excess of 81 fatal results of that description during last year, compared with 1848, or 47·36 per cent. increase. Such serious consequences speak most conclusively respecting the above highly objectionable practice, which therefore ought to be abated, for the sake of suffering innocent humanity.

Dr. **Ryan** fully appreciated the author's remarks on the importance of careful vaccination, and carefully watching the results. He had suffered personally from careless vaccination, and hasty conclusions of security.

Mr. **Hunt** said that it happened that he had on that very day visited the Small-pox Hospital, and, through the kindness and courtesy of Mr. Marson, had been permitted, not only to inspect about sixty cases of small pox, but to examine the arms of about forty of the number who reported themselves vaccinated. One of them who had the disease severely had not only been vaccinated, but pronounced secure for life; yet he had not the vestige of a cicatrix on either arm! Several others had very faint superficial and imperfect cicatrices, yet in all of these the disease appeared in a modified form, not running its usual course, though in some of them setting in severely; in others, the eruption being scarcely more extensive or severe than chicken-pox; and among them all, there was not one with a perfect cicatrix which had actually run the natural course of small-pox, all the vesicles being more or less rapidly matured, and not attaining the usual size. Mr. Marson had also kindly allowed a free inspection of the case-book, which was most accurately kept, and as far as it was examined, did not present any proof of the greater frequency of genuine small-pox after genuine vaccination, than of small-pox after small-pox. The severity of the unprotected cases was strikingly obvious at a glance, as compared with the mildness of the protected cases; and yet such was the prevalence of the disease, that more cases had been received into the hospital during the past week, than at any time since the first establishment of the hospital. He thought something might be learned from contemplating the increase of small-pox, viewed in connexion with the contemporaneous occurrence of so many cases of carbuncle, amounting to at least ten times the average number; to which might be added the extraordinary prevalence of boils, whitlows, abscesses, and pustules, showing a general tendency to purulent and pustular diseases; and he was anxious to learn the experience of the fellows on this point.

Mr **Hancock** could fully corroborate Mr. Hunt's report of the frequency of carbuncle, of which no less than ten cases had very recently occurred at the Charing-cross Hospital; but he had not observed more abscesses than usual

Mr. I. B. **Brown** had met with a most extraordinary prevalence of scarlet fever, especially in Cheshire to which county he had twice been called in consultation. The cases had been most severe and fatal, one practitioner having lost forty cases; but he found that by careful attention to the throat, and by judicious treatment by stimulants, tonics, and nourishment, the disease was almost uniformly arrested. practitioners after adopting this plan scarcely losing a patient. Mr. Brown commented upon the excessive mortality of infants, recorded in the report, as a consequence of the deprivation of their natural sustenance, of which he had seen numerous instances among the out-patients of St. Mary's Hospital. In very many cases it arose from the unnatural fashion among the higher circles of employing wet-nurses without the slightest necessity, these wet-nurses forsaking their own children for the sake of the profit, a habit which could not be too frequently exposed and condemned. After thanking Dr. Webster for his valuable paper, Mr. Brown said that his presence at St. Mary's Hospital would be welcomed, where a careful registry was kept, not only of the patients' cases, but of the state of the thermometer, barometer, and other meteorological changes.

Mr. **Dendy** hoped Mr. Brown would explain what he meant by attention to the throat, and in what the successful treatment consisted.

Mr. **Brown** replied, that the treatment consisted in applying nitrate of silver to the throat, in the first instance; vinegar and water externally and internally, with port wine and nourishment.

Dr. **Murphy** still placed unshaken confidence in proper vaccination, and hoped that the attention of Government would soon be directed to the subject. He coincided with Mr. Brown in his strictures on the evil consequences of mothers refusing to nourish their own children. It was productive of much infantine disease and mortality among the poor, and was often injurious to the children of the higher classes. It could not be too often or too severely reprobated.

Mr. **Harrison** wished to inquire whether the author of this paper had not observed that indications for treatment might be more accurately gathered from the type of the disease as modified by atmospherical phenomena, than from the name and nature of the disease itself.

Mr. **Dendy** said, so far from participating in the doubts of the efficacy of vaccination which had been expressed in some quarters, he was more than ever convinced, that when properly and successfully performed, it afforded as good a security from small-pox as small-pox itself. He and his colleague had met with many cases of abscess in children.

Mr. **Chippendale** thought that the discrepancy apparent between the experience of Mr. Hunt and Mr. Dendy, and that of Mr. Hancock, on the frequency of purulent diseases, might be explained by the fact, that abscesses occurred chiefly among children, who composed the cases in Mr. Dendy's dispensary, and who were rarely admitted into hospitals, carbuncles occurring only in adults.

Dr. **Bauer** said that in Prussia and Germany the custom not to admit children into schools until they had been vaccinated had so nearly exterminated the natural small-pox, that the Government had withdrawn the enactment of compulsory vaccination; and that although modified small-pox would occur after it, it was so rare for the disease to run its usual course, that out of *six hundred cases* of small-pox which he had seen when he was appointed a public vaccinator, only *five* observed the natural progress of the disease, all the rest being modified and generally very mild attacks. But this he attributed to the vigilance of itinerant vaccinnators appointed by Government, who first vaccinated all the children in a village or district, and then revisited the locality to observe the results on the following week.

Dr. Webster, in his reply, said that he should not regret the trouble he had taken in preparing his paper, if it were only for the interesting and important report which it had elicited from Mr. Hunt, in reference to the results of his visit to the Small-pox Hospital. He fully coincided in the opinion of all who had spoken on the subject, as to the protective power of vacination properly performed and satisfactorily watched to its progress and maturity. He was glad to hear Mr. Brown and Dr. Murphy express their disapprobation of what he believed to be an increasing evil and a disgrace to our age and country—the habit so commen among ladies of fashion of refusing to their offspring the food which nature had provided for them. It was the source of an unexampled and unknown amount of infantine mortality, especially among the poor. who necessarily neglected thier own children to supply the wants of others. He fully admitted the value of the indication alluded to by Mr. Harrison, and referred the general healthiness of the last quarter, to the prevalence of a dry easterly wind, which, though unpleasant to the feelings, was less productive of disease than a south-west wind, which was always moist; and he particularly noticed the salutary tendency of the uniform temperature, which. though cold, had been but a few degrees colder during the night than in the day.

Saturday, May 8.

WHAT IS METASTASIS ?

Mr. Pilcher stated that his object in selecting this subject for his address to the Society was to afford an opportunity for the fellows to determine whether such a condition as that generally understood by metastasis really existed; and, if so, to more accurately define and limit its meaning,—the more particularly as, upon the term being used in a former discussion, a distinguished member of the Society frankly declared he did not know what metastasis meant. The term—from μεταδτάω, I transfer—was employed by the ancient physicians to designate the transposition of a disease, its nature remaining the same, from one organ to another, They designated under the name of diadosis—διαδοχὴ—the transformation of a disease into an affection of a different nature, and occupying another organ. Thus, when hæmoptysis replaced a suppresssd hæmorrhoidal hæmorrhage, it constituted metastasis: when a disease of the skin terminated in chronic inflammation of the chest, it formed diadosis. The moderns have united these two orders of phenomena under the single term metastasis, which expresses indiscriminately a change, whether in the seat only, or at the same time both in the seat and in the character of the disease. Does metastasis occur independently of fixed rules and general principles ? Is it not, in fact, an aggravation of the general laws even of disease, which is for the most part secondary, or ternary, and not infrequently quarternary, and when fatal, is generally consecutive of a preceding affection; of which abundant examples are presented in internal inflammations, and in fevers, both idiopathic and symptomatic, of which Mr. Pilcher mentioned several instances. The difference between symptomatic or sympathetic disease and metastasis is very slight, if it exists. Mr. Travers, in his work on Constitutional Irritation, appears to consider them as identical. There are three modes, certainly, in which symptomatic or secondary diseases arise—first, continuity or contiguity of structure; second. association by means of the nervous system; third, similarity of function; and perhaps fourth, unity of an apparatus of dissimilar organs to produce one function; and fifth, identity of structure and function, though in health producing a different result, and the organs situated at a distance from each other. Of each of these causes of secondary disease—or of metastasis, as sometimes called—several examples were given; among others, of the first, erysipelas was noticed, extending to the structures beneath, to the fascia and the muscles through the scalp to the pericranium and bone, and on to the brainial membranes and brain; also from the face along the entire alimentary canal; or in the reverse direction: of the second, the known sympathies between the stomach and brain, between the kidneys and the thighs; between the hip and the knee, the liver and the shoulder or neck; between the intestines and the spinal marrow, through the medium of the great sympathetic; and probably by this means between every part of the animal economy. Of the third. similarity in function. perhaps the most interesting of sympathies, examples were noticed in the skin and lungs the skin and the kidney. the skin and mucous membranes, the lungs and the liver—the last so well seen in the effects of temperature upon the two organs, the cold climate requiring an inordinate action of the lungs to furnish the requisite caloric, and thus necessarily disengaging the carbon from the system; the more elevated temperature demanding a less amount of respiratory function, calls upon the liver to secrete a proportionally larger quantity of charcoal; hence the greater or less degree of action in the two organs augments or diminishes the predisposition to disease. Of the probable fourth mode of sympathy in disease, the examples of the digestive apparatus, of the circulatory, and of the urinary and generative, were afforded. It was certain, also, that the other three kinds of *modus operandi* exerted their influences in producing consecutive affections, as in stricture of the urethra destroying through disease in the bladder, the ureters, or the kidneys; yet disease of the kidney will irritate the urethra, without producing apparent affection of the ureters, or the bladder, and the reverse; likewise affections of the stomach excite disease in either extremity of the digestive canal, leaving the intermediate portions healthy, as far as symptoms allow the recognition; affections of the liver being followed by disease of the spleen, and the reverse. Of the fifth mode, examples may be adduced in the association existing between the voluntary muscles and the heart, the voluntary muscles and the diaphragm; the former indicated in muscular rheumatism affecting the heart, the latter seen in the spasm of cholera alternating between the external muscles and diaphragm. It is difficult to satisfactorily account for this metastasis of disease from the voluntary to the involuntary muscles upon the known physiological principles, yet it must be similar to that from one fibrous structure to another, so constantly witnessed. The difference in function between these two sets of muscles is proved by the excito-motory doctrine not to be so great as formerly imagined, since all muscles possess an involuntary action and the different arrangement of their fibres may be insufficient to lessen their general predispositions to disorder; these facts being allowed, it may be readily comprehended that the inordinate action of the great engine of circulation should during the fever of rheumatism, place it in a condition peculiarly liable to be secondarily effected by the existing general disease. Metastasis is not unfrequently confounded with coincidences in disease; different affections occurring at the same time, either from the same or from different causes; and likewise proceeding from the same cause, though developed at a distant period of time; examples of which are frequently seen in instances of mechanical accidents, and in affections arising from poisons, and particularly from poisoned or malarious atmospheres. In many such cases, diseases of different organs may have no other relation than that of similarity of predisposition and of cause. Counter-irritation affords one of the best examples of the so-called metastasis, though, being usually excited artificially, it is denominated a derivitant: hence exists the marked difference in the two conditions. A "materies peccans" is supposed to account for the transference of disease; and in many instances a morbid state of the blood gives rise to affections consecutively occurring in distant organs or tissues; but so far from being cases of metastasis, these blood diseases are continuations of the same affection, locally developed here and there, and at various times, as predispositions and existing circumstances may determine. At present our knowledge of this "materies peccans" is too vague and speculative to justify the foundation of a pathological doctrine. Among the examples of metastasis were mentioned, first, that of arthritic rheumatism to the heart or to the brain, accounted for by a like structure—the fibrous—in each being affected, and the then existing peculiar predisposition in the relative organ to be influenced by the general disease. It is also most frequently an addition to the inflammation of the joint or joints, and not a substitution, the original local affection continuing its course. Preparations illustrating this condition were shown, in which the inflammation of the knees suddenly subsiding, the pericardium became acutely inflamed, and proved rapidly fatal. Gout passing from one joint to another, and from the joints to the viscera, obeys the same laws as rheumatism, though appearing most capricious in its relation and in the rapidity of its transposition; more frequently than otherwise occurring as the consequence of a local cause. A gentleman had gout in the right great toe, with a red spot on its side; no other symptoms existing. Upon leaving a warm bath, he struck the left great toe; instantly the gout left the right and appeared with a similar spot in the left toe. A martyr to the gout was persuaded against his judgment to take a glass of champagne; before he had half emptied the glass the gout appeared in his foot. Gonorrhœa producing epididymitis is merely an extension of inflammation along the vas deferens; the occasional non-appearance of disease in the spermatic cord is no proof of its non-existence. Gonorrhœal ophthalmia can generally be traced to direct inoculation, and most probably always so arises. Gonorrhœal rheumatism and gonorrhœal lepra are most probably blood diseases. The secondary and ternary diseases of syphilis are certainly the results of a poisoned condition of the blood. The metastasis of mumps to the testicles, and to the mammæ in girls, possesses a considerable apparent peculiarity, both in its great frequency, and in the dissimilarity of the affected organs in their structure and function. The idea of this peculiarity may be lessened, though it may not be accounted for, by the fact of the metastasis usually occurring when the testicle or breast is especially predisposed to inflammation, it then being in a state of almost, but not quite complete development; besides which, there appears reason to believe that an association exists between the development of the salivary glands and that of the generative organs, as well as between the latter and the organs of voice—an interesting circumstance occasionally exemplified in man, and constantly in the varied development of these glands in the entire and castrated neat animals. Purulent deposits or secondary suppuration in distant tissues cannot be accounted for on the supposition of absorption only, either through the medium of the lymphatics or the veins, or both, though it is not to be denied that pus-globules are occasionally received into the blood. Dr. Froriep is of opinion "that the materials going through the capillaries to the blood are in a state of solution, and do not contain globules, for the porosity of the membrane is not sufficient to permit the passage of globules of pus, so that the appearance of such globules must be co-existent with the effusion of matter. Hence it is incorrect to suppose that a direct discharge of globules of pus takes place into the sac of the pleura, the peritonæum, or the cavity of the arachnoid, as it is said in purulent metastasis; and it is equally erroneous to imagine that, when pus ceases to be secreted from the surface of a sore, it has been transported in the current of the circulation, and deposited in some internal organ where inflammation is going on." It must, however, be conceded that these "depôts of pus" are the result of a morbid state of the blood, derived from the original abscess or suppuration, and the localization of the new inflammation and its consequences are determined by local peculiar conditions. In most cases, and perhaps in all, the metastatic affection occurs in similar structures, though it may be in dissimilar organs; nor does it necessarily terminate in suppuration or purulent deposit, though originating from that source. A young man was inoculated with glanders from a dead horse; suppuration of the joints occurred, first in one, then in another; the external inflammation suddenly subsided, and he rapidly died from suppuration of the peritonæum. A post-boy had an abscess in the axilla; in a moment he became raving mad; a drachm of laudanum was administered, the abscess was opened, and he at once recovered. A man with a cavity in the lung suddenly became deranged; the disease of the lung was arrested; he was committed to prison in consequence of his violent actions, and from thence sent to a lunatic asylum; when the mind was restored, the lung renewed its diseased action, and quickly proved fatal. A boy, ten years old, struck his left leg on the 22nd of January, but did not much complain till the 25th, when he went to bed. On the 27th, he was admitted into St. Mary's Hospital, complaining of great pain in his leg, which was swollen, and very tender. Upon examination, he was found to labour under pericarditis and pleurisy, from which he died on the following morning. Post-mortem examination showed periosteal abscesses of the left leg and thigh: recent pericardial and pleuritic adhesions; purulent deposits in the lungs, heart, and kidneys, and thickening of the popliteal vein. The metastasis of disease from the skin to the lungs, and almost invariably to the mucous membrane, however it may afterwards extend to the other tissues, is too common to need cases of illustration, and unhappily too frequently fatal in acute affections, and especially in the exanthemata. Many of these cases are attributable to evident extension along the surface of the allied membranes; others to the arrest of the cutaneous function exciting that of the respiratory; and it must never be forgotten that the external and internal dermoid structures are mere modifications of each other. Similar observations are even more applicable to the association in disease of the skin and intestinal mucous membrane, in which metastasis, however, the affections are more frequently found to be chronic. How constantly it was customary to rank uterine phlebitis, with all its distressing consequences, under the head of metastasis, now so completely proved to be an extension of disease along the veins, not infrequently attended by the supposed absorption of pus.

One of the most remarkable examples of the so-called metastasis is seen in the effects of a slight external injury terminating in delirium, and even producing fatal shock. From the foregoing facts and remarks, Mr. Pilcher considers it a fair and reasonable deduction, that though the term metastasis may be very conveniently and usefully employed in its limited sense, such a condition as it is generally meant to imply does not really exist: that the very large majority of these cases are to be accounted for upon the general and recognised principles of physiology and pathology; and that in the occasional instances in which such known laws and the presented facts cannot be reconciled, it is due to our own imperfect acquaintance with those laws and principles, and not to any vague and capricious action of nature.

In the discussion which ensued, various opinions were expressed respecting the nature of metastasis, and it was generally considered that Mr. Pilcher had taken a too extensive view of that condition.

SATURDAY MAY 15.

Mr. B. W. RICHARDSON exhibited to the Society a new form of stethoscope which he had recently invented. With reference to conveyance of sound, this stethoscope did not differ from other kinds, but it was much more portable and convenient. The improvement lay in the ear-piece, which was joined to the tube by means of a very simple hinge-joint, on the principle of the joint used in the enema syringe, so that the ear-piece could be folded down upon the tube when not in use, (like the top of a round table,) and could then be carried in the breast pocket without causing the slightest inconvenience. The joint was also so managed that the instrument could be used with the ear-piece standing at different angles, an advantage of some importance. Two other stethoscopes were likewise shown, in which the ear-piece moved down upon the tube; but these, though simple in construction, were not so complete as the one above described. The stethoscope was made by Weiss and Son, and was of moderate cost.

CASE OF GRANGRENE OF THE LUNG.

Dr. HALLEY read an extract from a letter giving an account of an interesting case of gangrene of the left lung, which occurred at the Merchant Seaman's Hospital at Hong Kong, under the care of Dr. W. A. Harland, of that hospital:—"An American sailor was brought up to the hospital in such a condition as almost to preclude all hope of his surviving beyond a few days. On the second day after his admission he fell out of bed, and on being raised up again he complained of severe pain under the left mamma. Dr. Harland immediately examined the part, and found a swelling of considerable size, and with distinct fluctuation. With some hesitation he made a small incision, and finding an escape of pus only, he enlarged the opening to about an inch and a half in length, when upwards of half a pint of extremely fœtid pus, with small shreds of gangrened lung, were evacuated, the discharge being suddenly stopped by a mass of the dead lung itself protruding through the orifice. By gentle traction with the forceps he was enabled to withdraw this to the extent of nearly two inches; but finding it not yield any further, and afraid of hæmorrhage if he cut it, he applied a poultice, which was renewed every three or four hours, and at each dressing pulled out the lung a little more as the opening increased in size by ulcerative absorption. On the third day after the incision was made, the protruding mass became so troublesome and offensive, besides exhibiting some appearance of spontaneous separation, that Dr. Harland removed it by the knife; no hæmorrhage occurred, and the opening appeared to be filled up by the pericardium, (as by a valve,) which gradually became thickened and adherent all round to the parietes of the chest. The detached piece of lung would scarcely go into a pint measure, and weighed nearly a pound. The man rapidly recovered, and about three months afterwards shipped again as a seaman, in a vessel bound to New York." Dr. Harland subsequently writes—"Last month (Dec. 1851.) I was agreeably surprised by a visit from my old patient, who came to show me that he was alive, and quite strong and hearty again. It appears that in consequence of the ulceration having exposed a part of one rib, some discharge continued to ooze from the wound for some months after he left me, and on which account he went into one of the hospitals on his arrival home in New York. Under medical treatment for a short time the wound soon healed, and his case excited considerable interest, almost all the principal medical men there having visited and examined him. From New York he went to sea again, and then to the mines in California, where he worked as a gold-digger for above a year, and at last to Hong Kong, where he arrived last month. He told me he could work as well as ever, and had never been troubled with cough since he left me: the only difference he could perceive was, that he thought that he was rather shorter-breathed than before, if he had to exert himself strongly for any length of time. A marked difference, too, is at once perceptible in the relative dimensions of the two sides of the chest. He went back to California a few days ago, (Jan. 29, 1852.)"

Dr. Halley regretted that more particulars were not added in regard to the subsequent physical and auscultatory signs, but hoped at a future time to lay them before the Society; at the same time he thought the case so remarkable and unique as to be well worthy of their attention, even in its present form.

Mr. I. B. BROWN read a paper

ON A NEW MODE OF OPERATING FOR OVARIAN DROPSY,

consisting of the excision of a portion of the cyst, returning the remaining portion into the peritoneal cavity, and closing the wound by sutures, thus allowing any fresh fluid secreted by the remaining portion of the cyst to escape into the cavity of the abdomen, there to be taken up by absorption, and discharged by the kidneys. Mr. Brown said this method of treatment was suggested to his mind by reflecting upon the numerous cases on record, in which a spontaneous cure has occurred by an accidental rupture of the cyst, followed by a copious discharge of urine. This mode was not considered applicable to every case, nor was it the purpose of the author to lay down any absolute rules for its use, but simply to relate such facts as had come under his observation.

CASE 1.—This case had been alluded to on a former occasion, and Mr. Brown now read the notes of the case as they were taken by Mr. Bullock, at St. Mary's Hospital, where the operation was performed. The woman, aged forty-seven, was subject to prolapsus uteri, which Mr. Brown considered as presenting a sufficient objection to treating the case by pressure. The swelling first appeared rather on the left side, about nineteen years ago, but had increased rapidly during the last six months. The following was her condition on admission to St. Mary's Hospital, Feb. 13th, 1852:—Abdomen considerably enlarged with shooting pains extending to the shoulders. Complete procidentia uteri, returned with difficulty. Percussion dull in front, resonant at the sides, less so on the left than the right; fluctuation very distinct, the integuments moving freely over the tumour. Feb. 14th: Ordinary diet; porter, one pint; blue-pill, three grains; compound aloetic pill. four grains. every night, with saline diuretics.—March 6th: General health good; some fluid drawn from the cyst with a small trocar was quite clear, with only a trace of albumen and some chlorides.—10th: She was placed under the influence of chloroform, and an incision was made through the integuments, down to the linea alba, from an inch and a half below the umbilicus, extending four inches. The linea alba was then divided, afterwards the transversalis fascia, and finally the peritonæum; the cyst was then presented to view, and found to be free from adhesions. It was seized by a pair of forceps, a large trocar was introduced, drawing off about sixteen pints of fluid, leaving some fluid in the cyst, and then a piece of cyst which appeared comparatively free from blood-vessels was excised. The external wound was closed by interrupted sutures, the ligatures including all the abdominal parietes except the peritonæum. She was ordered two grains of opium immediately, and one grain every three hours. A pad of wet lint was placed over the wound, and a broad bandage round the abdomen. Severe peritonitis ensued for the first five or six days, which was subdued completely by large and repeated bleedings from the arm, with calomel and opium. In eight days the abdominal tenderness had subsided, the abdomen became flaccid. and the urine passed exceeded in quantity the fluid swallowed.—By the 21st (eleven days after the operation,) the remains of the cyst could be felt on the right side of the cicatrix, as a solid substance of an irregular form. On the 3rd of April, no increase of the abdomen could be discovered, and on the sixth she was discharged. Mr. Brown said he expected that the kidneys would continue to secrete more fluid than was drunk for some time, and that the cyst would ultimately become of an indurated, perhaps calcareous character, possessing less vitality, and incapable of secreting fluid. He should feel himself bound to report to the Society any return of the disease. although he did not anticipate a relapse.

Case 2.—In this case, which had been treated nine years ago by tapping, pressure, mercurials, and diuretics, so far successfully that no return of fluid took place for seven years, the abdomen had been gradually enlarging for the last two years, and the patient was anxious for a radical cure, and sanguine as to the result of the operation of excision of a portion of the cyst. She was previously prepared for the operation by a farinaceous and milk diet, avoiding stimulants, and keeping the bowels well open daily, under which treatment the size of the abdomen was materially reduced. The operation was performed on the 29th of March, 1852, in a manner similar to that related in Case 1. Nine pints of clear fluid were withdrawn, and a portion of the cyst excised. But it unfortunately happened that the peritonæal coat of the cyst was very vascular, and hæmorrhage ensued, which was not to be subdued by torsion of the vessels. As there were no adhesions, it was determined to remove the whole cyst. A double ligature having been tightly applied over the pedicle, which was attached to the left ovary, about an inch and a half broad, and containing one large bloodvessel, the pedicle was divided, the cyst removed, sutures applied, and over them a many-tailed bandage. The case did very well, no signs of inflammation occurred, the ligature came away in four weeks, and on the day following the patient was in her drawing-room, convalescent. This case was related, as illustrating an important difficulty which might occur, rendering the removal of the whole cyst a safer practice than tying several bleeding vessels, and leaving the ligatures within the peritonæum, a source of much danger.

Case 3.—In this case the operation was performed in a similar manner to that detailed in Case 1. A portion of the cyst was excised, but a second large cyst was found, the fluid of which was evacuated, and the wound closed. An attack of inflammation ensued, which was successfully combated by bleeding, calomel and opium. and the patient did well. The first cyst became collapsed, and could be easily felt beneath the walls of the abdomen; but the second cyst has frequently filled since; and now, sixteen months after the operation, it fills at a much slower rate, and the patient's health is much improved. Steady and firm pressure has been had recourse to after each tapping, to which Mr. Brown attributes mainly the slower filling of the cyst. This case was related to show another complication which might occur.

Mr. Brown concluded by expressing a hope that this operation may prove to be another successful method of treating this very troublesome disease.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON, &c.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tum aliorum proprias, collectas habere et inter se comparare.—Morgagni. *De Sed. et Caus. Morb.* lib. 14. Prœmium.

ST. GEORGE'S HOSPITAL.

Removal of a Tubero-cystic Tumour of the Breast.

(Under the care of Mr. Tatum.)

A very instructive illustration was a short time ago afforded, in the theatre of this hospital, of the magnitude which tubero-cystic tumours of the breast may attain, and of the resemblance which this peculiar kind of growth then acquires with malignant tumours. In fact, an inexperienced eye would have easily been misled by the firm, nodulated feel, and bluish-red colour of the unsightly mass, and ranked it among cancerous manifestations; the more so as the whole gland seemed to have been invaded and amalgamated with the abnormal growth. The base of the latter was quite flat, and fixed on the ribs, the whole presenting a repulsive-looking, hemispheric tumour of the size of a man's head.

It was evident that the wound made for the removal of such a mass must heal by granulation, for the skin and gland were so completely destroyed. and the base of the tumour so extensive, that a large space must naturally be left altogether devoid of cutaneous protection. Nor could it be doubted that the ablation of so large a growth would give rise to terrible hæmorrhage. The latter complication was, however, avoided by appropriate management, and comparatively little blood was lost.

The patient is a woman about fifty years of age, married, and the mother of six children; she did not suckle any of these, being prevented from doing so by the flatness of her nipples. Only a twelvemonth before admission, she noticed a small tumour in her right breast; as it grew very slowly, and gave hardly any uneasiness, no attention was paid to the growth until about three months since, when it suddenly assumed a rapid development; it had, in fact, increased by a full third within the last three weeks. The general health, however, had not materially suffered, and on the 29th of January, 1852, Mr. Tatum proceeded to remove the tumour.

After the two circular incisions had been carried around the base, the whole mass seemed ready to come off, so thoroughly had the subjacent parts been absorbed; the pectoral and even the intercostal muscles having (as was soon afterwards seen) been completely involved in the disease. As Mr. Tatum was removing the huge growth, his colleagues thrust in sponges on the denuded ribs, keeping the former tightly down, so as to control the loss of blood, which, without this precaution, would probably have been considerable. The sponges, when the mass was removed, covered almost the whole of the right side of the chest, and were gradually withdrawn as the vessels were being tied.

When these measures were completed, the whole area which had been covered by the base of the tumour was brought into view, and nothing separated the lung from the external air along three or four intercostal spaces but the inner layer of intercostal muscles. The extensive wound was covered with wet lint. and the chest bandaged in the usual way.

Mr. Tatum now made a section of the tumour which was almost solid and whitish, with here and there a compressed cyst, and thought, from the general aspect, that it belonged to the tubero-cystic kind. Mr. Tatum said that if the enormous growth had been allowed to remain until suppurative action had been excited, the patient must speedily have sunk under this debilitating process; and had the tumour even been malignant, some good might thus have been done by the operation.

The tumour has since been submitted to microscopic investigation by Dr. Ogle, the curator of the museum, and no trace of a malignant cell was discovered. It is, however, but too probable that the disease will return, as this particular kind of growth is very prone to reappear after removal by the knife. Of this fact a very striking proof was lately afforded by a young female patient of Mr. Charles Johnson, from whose breast a tubero-cystic tumour was removed; for *six weeks* afterwards she presented herself again with a recurrence of the disease on the lower portion of the cicatrix. Mr. Johnson lately excised this second growth, and the patient is now in the hospital.

As to the size which these tumours attain, we should not omit to mention that Mr. Tatum has removed even larger growths than the one presented by his present patient, and tumours of this kind have been noticed upon dead subjects in this hospital, which had reached an enormous size. As this disease is by no means rare, it should be carefully studied, (for it is a great mistake to bestow exclusive attention on pathological phenomena seldom met with,) and there is for this purpose, in this hospital, a valuable series of preparations, which were offered by Sir Benjamin Brodie. They illustrate, in a very interesting manner, the gradual development of the intra-cystic tubera, which, by increase and coalescence, produce the gigantic tumours to which we have alluded.

The progress of this patient has been pretty satisfactory, but it has presented a feature which is well worth putting upon record. Granulations sprung up very rapidly in all parts of the extensive wound left after the operation, but it would appear that a small portion of the diseased texture had been left towards the centre, for a little fungus growth began very soon to show itself in that locality. A paste of chloride of zinc was diligently used, in order to destroy the fungosity, but it took several weeks before its growth was controlled. At last it yielded to the constant repetitions of the cauterization; the rest of the wound cicatrized at the same time, and the patient left the hospital about two months after admission, the parts being almost completely healed over.

ST. MARY'S HOSPITAL.

Lithotomy on a little Boy, aged one year and eleven months.

(Under the care of Mr. COULSON.)

JOSEPH N——, twenty-three months old, was admitted, under the care of Mr. Coulson, August 12, 1851, with stone in the bladder. When only one year old, the child suffered from retention of urine, which was relieved by the introduction of a catheter. Since that time he is stated to have suffered more or less pain in passing water. The little patient is pale and thin; he is subject to frequent attacks of diarrhœa, and the abdomen is somewhat enlarged. It is extremely probable that the child is affected with mesenteric disease. On August the 20th the lateral operation was performed, and a small calculus extracted. Mr. Coulson mentioned, after the patient was removed, that this was the youngest child upon whom he had operated for stone; he had, however, removed calculi in two cases from boys under three years of age. No unfavourable symptoms occurred in the present instance; the patient progressed very satisfactorily, and it is confidently hoped that the general health will improve, now that a very trying source of irritation is removed.

Severe Hæmorrhage from the Gums in a little Girl.

(Under the care of Mr. URE.)

That hæmorrhage from the gums could endanger life seems at first sight unlikely; but as death has actually occurred from loss of blood in that locality, it may perhaps not be useless to dwell for a few moments on a case in which the means employed to arrest the bleeding proved successful. Surgeons are fully aware that it is extremely difficult to arrest hæmorrhage when the blood keeps on oozing from an extensive and vascular surface; much more so, indeed, than when the loss occurs from a defined and limited spot, as in the latter case, pressure or the ligature of vessels has a very fair chance of success. As to the gums, for instance, we need not say how much more practicable it is to arrest hæmorrhage after the extraction of a tooth or an incision, than in cases where the blood is issuing from a great extent of mucous membrane We beg to direct especial attention to the favorable effects of turpentine which Mr. Ure obtained in the following case, the notes of which we obtained from Mr. Bullock, the house-surgeon:—

Mary W——, a delicate-looking child, aged nine years, seemingly unaffected with scurvy or other disease of the gums, was admitted January 15, 1852, under the care of Mr. Ure. The child was brought into the out-patients' room by her father early in the morning; he stated that when he awoke in the night he found his daughter bleeding from the mouth, and that she had lost a great deal of blood, as her night-gown and neck were quite saturated. On examination, it was found that the bleeding from the gums was general, and no defined spot whence the blood issued could be found. An astringent gargle was therefore ordered, and the child allowed to return home.

In the evening the patient was again taken to the hospital, as the bleeding had continued ever since the morning, and was still going on. She was immediately admitted, sent to bed and tannin applied, but without any apparent relief. Nitrate of silver was then tried, but this, as well as the application of ice, likewise failed. Mr. Ure now ordered five minims of oil of turpentine to be taken in honey every hour, and a pledget dipped in the same fluid to be applied to the gums, and kept carefully *in situ*. This was done at about one o'clock in the morning, and finally arrested the hæmorrhage. The night was pretty good; some castor-oil was given in the morning, and it was noticed that no blood was evacuated per anum. The piece of lint moistened with oil of turpentine was still in the mouth, saturated with blood. At four in the afternoon, this pledget was carefully removed, whereupon the gums began again to bleed; the application was renewed, and the child now took internally ten minims of oil of turpentine in the same vehicle as before. She was allowed some beef-tea, and on the third day of her stay in the hospital, the hæmorrhage stopped altogether. The child remained, however, very pale, the pulse beating only 80, and rather weak. She was now ordered steel preparations, and left the hospital a week after admission in a satisfactory condition.

We shall conclude by quoting a case which occurred in Scotland, and which will tend to show that hæmorrhage from the gums is sometimes an accident of a very serious kind. The facts were published in the *Scottish Guardian*, and reprinted in the *Morning Post* of June 20th, 1850:—

"At Kirriemuir, a young man died from the effects of profuse bleeding from the gums. About twelve or thirteen days before death, blood began to ooze from between the teeth; this caused no uneasiness at first, but it soon increased, and the medical man made little of it, though the bleeding now came from the lower jaw, it having commenced in the upper. Two other medical men now visited the patient frequently, and various remedies were tried, but without the smallest success, none of the medical men acting in concert with one another. An eminent physician of Edinburgh prescribed upon description a totally different course from what had been pursued by the local surgeons; another celebrated practitioner was consulted at a distance simultaneously with the first, and ordered the head to be shaved and blistered, and also the back of the neck. This was the same treatment as had been advised by the Edinburgh physician. The patient was, however, too weak, and soon died. The young man had not had any teeth extracted, and had received neither hurt nor injury to the teeth and gums."

GUY'S HOSPITAL.

Carcinomatous tumour attached to the Uvula and posterior pillar of the Fauces; Removal; Recovery.

(Under the care of Mr. Birkett.)

Mr. Birkett has lately had under his care a case of tumour of the fauces, remarkable for the locality where the disease sprung up, the malignant nature of the affection, the small amount of uneasiness experienced by the patient, and the success which has attended the removal of the growth. The facts are as follows:—

A small, active, and intelligent man, fifty-four years of age, was admitted October 1, 1851, in consequence of a tumour growing from the velum pendulum palati. He states that his health has always been good, that he has lived temperately, and that he has followed an occupation connected with the hemp and flax trade. To the dust which arises in turning over these materials, and the irritation it caused in his throat, he attributes the development of the growth to be presently described. Such an origin, however, is problematical.

A few days before admission the patient complained to a surgeon about a sore throat, and upon the latter examining the region, the tumour was for the first time observed: the man, in fact, was perfectly ignorant of its existence; he had, "to be sure," he said "felt some little difficulty in swallowing, and thought the food did not go down so well as usually, but he had never thought of looking into his throat." No pain in the part had ever been felt.

Fig. 1.

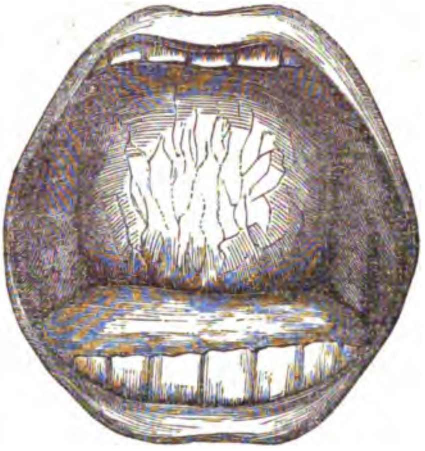
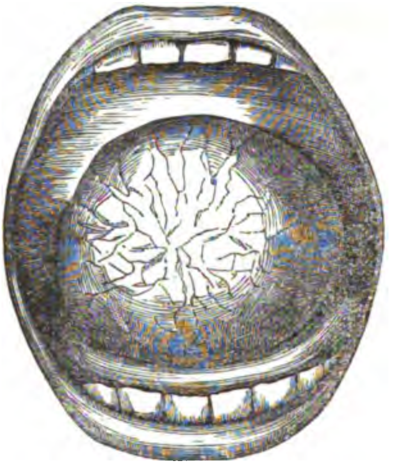


Fig. 2.



The above drawings, which are life size, represent the tumour in two conditions. In the first figure it hangs down into the pharynx, resting upon the back part and root of the tongue, and advancing into the mouth. This is its ordinary position, and it appears in this situation when the patient first opens his mouth for an examination.

He has the power of throwing it forward, by an effort of slight coughing, and it then assumes the appearance represented in the second figure.

The tumour rests upon the dorsum of the tongue, covering its two posterior thirds; it may be freely moved from side to side, and seems as if it would fall out. When carefully examined, the peduncle by which it is attached appears to be continuous with the right pillars of the fauces on the outer side, and with the right portion of the uvula on the inner. Towards the left border of the tumour, the left half of the uvula could be detected by irritating the mucous membrane, when a slight retraction of a very minute ridge was sufficient evidence of the situation of this organ. The entire surface was covered by mucous membrane, the subjacent vessels of which were enlarged and tortuous, giving rise to the impression that the growth itself might be supplied with large blood-vessels. In the absence of Mr. Cock, who deputed Mr. Birkett to attend to the case, the latter punctured the swelling, as he thought, from its elastic nature. that it might arise from an obstructed follicle. But Mr. Birkett was disappointed in this supposition, for he obtained sufficient evidence of the internal structure of the tumour to satisfy himself that the new growth was carcinomatous.

A fortnight after admission, Mr. Birkett removed the entire growth by excision, having first passed a ligature through it, so that an assistant might keep it forwards and prevent it, when its peduncle was partially cut through, from falling down upon the epiglottis. Not the slightest hæmorrhage of importance ensued, and the trifling loss of blood which occurred was easily arrested with cold water.

The wound was very trivial, extending along the posterior pillar of the fauces chiefly, and in the site of the uvula. It healed in a few days, and the patient left the hospital ten days after the operation.

The man showed himself again four months afterwards, when the pillars of the fauces were found quite perfect; and except the loss of the uvula, in which part there is a slight cicatrix. the region had entirely regained its normal and healthy aspect.

Upon examining the morbid structure there could be no doubt that it was of a carcinomatous nature; and this opinion, derived from mere ocular inspection, was confirmed by observation assisted by the microscope. As an instrument for assisting diagnosis, the microscope became available, as stated above, in the first examination

The entire new growth was enveloped by a thin, delicate cyst, seemingly of the sub-mucous cellular tissue. A section exhibited a uniformly smooth, finely mottled, and granular surface; the elements of the tissue were fibres, nucleated bodies, and granular cells. It was of soft consistence, and very easily broken up. A patch of extravasated blood in the centre was, in all probability, caused by transfixing it with the needle and ligature.

M. Lebert, in his admirable and recently published work on cancer, ("Traite pratique des Maladies Cancérenses," Paris, 1851,) the best work at present on the subject, writes, at page 421:—

"We distinguish two principal forms of cancer of the palate, the most common of which—viz., that of a diffused kind—presents ill-defined limits. . . . . . . The second form is more seldom met with, and is of the encysted kind; of this I have seen two examples. The tumour, in such cases, springs up in the sub-mucous tissue, projects above the velum palati, and is even somewhat moveable. The size is variable, but I have seen it as large as a pigeon's egg."

ROYAL FREE HOSPITAL.

Fissure of the Soft and Hard Palates, and of the Aveolar Arch; Operation upon the Velum and Osseous Parts.

(Under the care of Mr. Gay.)

Those who are conversant with the principal operations of surgery know full well that there are very few which present so many difficulties, as regards manipulation, as those which are performed in the cavity of the mouth, or within the vagina and uterus. Both regions require patience, temper, and dexterity; but as operations upon the cavity of the mouth almost preclude the use of chloroform, and since fits of coughing are almost sure to occur, patience and perseverance are more necessary for the oral than the uterine region. But we can at least fully *see* into the mouth, while the reverse happens very often with operations performed upon the female organs of reproduction.

Among the surgical measures which the interior of the mouth may require, staphyloraphy is one of the most important, and affords us an example of the beneficial influence of modern anatomical and physiological investigation. Not many years ago, this was one of the operations which was undertaken with the greatest reluctance, as failure was the rule, and success the exception; but since Mr. Fergusson has shown that the spasmodic traction of the soft palate could, by the division of certain muscles, be greatly diminished, and even completely abolished, the operation is frequently performed, it is very often crowned with success, and scores of patients reap the benefit of the improved mode of operating. But human ingenuity has hitherto failed in devising means of bringing about the union of the *hard* palate; and persons afflicted with this congenital defect must be content, after union of the two halves of the velum has been effected, to complete the improvement of voice and deglutition by wearing an obturator in the osseous fissure. The latter, however, may sometimes be so large, and the septum nasi so awkwardly attached, that an attempt must be made to rectify the defect, and render the gap of such dimension as to allow the patient to wear an obturator. Such a case has lately presented itself to Mr. Gay; and he succeeded, by a series of operations. in diminishing the fissure to such a degree as to facilitate the application of an obturator, by the aid of which the patient's voice has been considerably improved—the more so as perfect union of the fissured soft palate, was subsequently obtained. Mr Lane, house-surgeon to the hospital, has kindly furnished us with the following details which will certainly be read with much interest:—

Mary B——, aged nineteen years, a stout, healthy-looking girl, was admitted, October 8, 1851, under the care of Mr. Gay. She is affected with a congenital fissure through both hard and soft palates and the aveolar arch, laying into one the oral and left nasal cavities. The fissure in front corresponded to the interval between the left lateral incisor and canine teeth, and was complicated with a considerable projection forwards of the incisive portion of the superior maxillary bone. The left lateral incisor has been extracted when she was young This state of parts had originally been further complicated by hare-lip; but the latter had been very successfully operated upon by Mr. Gay some months previously.

The girl's speech was unintelligible to strangers, and deglutition attended with much difficulty and inconvenience. The cleft in the hard palate was rather to the left of the mesial line, leaving the septum nasi attached to its right margin.

Mr. Gay resolved to make the attempt of lessening this wide gap in the hard palate, and proceeded as follows:—After the necessary division of the soft parts, the projecting incisive piece of jaw was sawn partially through from its palatal surface, about an inch from the free border, the axis of the saw being nearly at right angles with the outside of the alveolar arch. This having been effected, the incisive portion of bone was forcibly broken down and brought in contact with the opposite side, to which it was united by binding together the contiguous teeth—viz., the left lateral incisor and right canine, with silver wire.

Three weeks after these measures, the soreness of the parts having nearly subsided, a second operation was performed. Mr. Gay's object in the present instance was to attempt the closure of the fissure in the hard palate, by bringing down the lower portion of the septum nasi. To accomplish this, the mucous membrane of the septum was divided by a horizontal incision, nearly three-quarters of an inch above the margin of its cleft; the vomer was then cut through by means of bone-forceps, curved laterally, after which the upper portion of the septum was forcibly brought down by means of an instrument, bent at right angles, passed over it above. Considerable force was required, and Mr. Gay made several attempts before he succeeded in bringing the cut margin of the septum to the left side of the cleft. To the latter it was united by one strong suture; but no union took place. After the separation of the suture, the septal piece slightly rose out of position.

Some aphthous ulceration of the inside of the left cheek and gums now occurred, which was much relieved by a gargle consisting of dilute hydrochloric acid and tincture of myrrh, of each two drachms, distilled water, eight ounces.

On the 25th of the same month, a second attempt was made to unite the parts by suture, but without success; the depressed piece did not, however, on this occasion, as before, rise out of its position till some time afterwards, when it gradually left a narrow fissure on its left. This fissure increased in breadth towards the front, owing to the shelving off of the anterior edge of the vomer.

Early in November, one month after admission, Mr. Gay operated on the fissure of the soft palate. It was found that on irritating the flaps by means of a pointed instrument, each was drawn upwards and outwards in a spasmodic manner, so as to become nearly lost in the sides of the pharynx.

After section of the levator palati muscle of one side, the corresponding flap became incapable of being drawn up in the spasmodic way alluded to, and presented a strong contrast to the one of the opposite side when similarly irritated; and after division of both levatores palati muscles, the flaps were observed to fall considerably, so as materially to reduce the size of the cleft; but this was more especially the case at the posterior part.

The pillars of the fauces were then carefully divided on each side with curved blunt-pointed scissors; after which, in consequence of the width of the cleft, and to facilitate the approximation of the soft parts immediately behind, Mr. Gay cut off each half of the velum palati from its corresponding palatal bone, by making a transverse incision on each side close to the osseous surface.

The margins of the cleft were then pared and brought together by means of five sutures, according to Professor Fergusson's method. The bleeding from the incisions was rather greater than usually occurs in such cases, but was controlled by the use of iced water, and had completely stopped before the sutures were tied.

No more inflammation ensued than was required for the union of the parts. The sutures were removed on the sixth day, when the flaps were united, except a small point in the centre, which granulated rapidly, and soon closed. Nutrient fluids were given from the first, in small quantities, at frequent intervals, and after the ninth or tenth day, the patient took solid food.

The girl was discharged in January, 1852, the cleft of the soft palate having completely closed; the left alveolar arch is also almost in its normal state in appearance, and the greater portion of the cleft in the bony structures has also been remedied. The opening remaining is about large enough to admit a horsebean, and from this there extends a linear fissure along the margin of the depressed septum. These apertures will be closed by means of a small obturator, which will render the case almost unparalleled as regards its success.

There is already some improvement in her articulation, the result of practice in pronunciation given her by the house-surgeon, Mr. G. F. Lane.

KING'S COLLEGE HOSPITAL.

Two Cases of Vesical Calculus in Boys; Lithotomy; Recovery.

(Under the care of Mr. FERGUSSON.)

WE witnessed the lateral operation performed on the same day upon these two patients, and were much struck by the ease with which Mr. Fergusson removed the small stones with an instrument not frequently used for this purpose—viz., the scoop. Among the numerous operations of this kind which we see in the hospitals of this metropolis, we remember few where, especially from the small size of the stone, it was very difficult to seize it with the forceps; if in these instances the scoop had been substituted for the latter instrument, a great deal of trouble and anxiety might perhaps have been saved. There is, if we may judge from the promptness with which Mr. Fergusson drew the small calculus from the bladder, much advantage in using the scoop, the only drawback appearing to be, that unless great care be taken, the mucous membrane of the bladder may be somewhat irritated by the scraping action of the scoop.

Indeed, calculi of small dimensions are very liable to create much embarrassment to the surgeon. We have recently known two cases of the kind: in one of these the stone could not be found after the neck of the bladder had been laid open, and the calculus was subsequently passed through the wound while the patient lay in bed; and in the other, the stone, which probably is retained in a sacculus of the mucous membrane, could not be discovered at all after the incisions had been completed, though it had been felt by the surgeon before the operation. Such a disappointment occurred to M. Roux in Paris a few years ago; and we saw the other day a longitudinal stone removed from the urethra by incision in the perinæum, in the case of a little boy, where a complete diagnosis could not be satisfactorily arrived at. The operation had therefore been postponed, and shortly after, the stone became impacted in the utrethra, and was removed, as above stated. It is more than probable that at the time the sound was searching for the stone in the bladder, the former was, if we may judge from its lengthened shape, retained in the ureter. We are obliged to Mr. Wormald for showing us this interesting specimen, the stone having been excised from the perinæum by Mr. Stanley, at St. Bartholomew's Hospital.

It is very likely that the retention of stones in sacculi formed by the herniated mucous membrane, or the calculi being held back in the opening of the ureter at the moment they are passing into the bladder, may sometimes have led the operators themselves to suppose that they had formed an incorrect diagnosis.

The principal facts of Mr. Fergusson's cases are as follows:—Edward B——, aged six years, was admitted March 20, 1852, under the care of Mr. Fergusson, with several of the symptoms of vesical calculus. About two years and a half ago, the patient's mother noticed that he experienced pain every time he passed his water, and that he was frequently pulling his prepuce; blood was often seen in the boy's urine, and the flow of the latter used to stop suddenly. These symptoms had continued with more or less intensity ever since, and had caused the patient much distress. Mr. Fergusson readily detected the stone on sounding the child, and proceeded to perform the lateral operation a week after admission.

Mr. Fergusson is in the habit of making a free external incision, and the parts are in such close proximity with young patients, that very few strokes of the knife are sufficient afterwards to reach the neck of the bladder and lay it open. We suspect that the aperture into this viscus is made at first very small, as Mr. Fergusson generally appears to dilate it with the left forefinger before introducing the forceps. This instrument, as stated above, was not used in this instance, as Mr. Fergusson, knowing the calculus to be small, preferred using the scoop, with which he succeeded in removing the stone in a very short time. The patient progressed satisfactorily; in about a week the whole of the urine passed through the urethra, and the boy was discharged with a firm perinæal cicatrix one month after the operation.

Case 2.—John V——, six years of age, was admitted March 14, 1852, under the care of Mr. Fergusson, labouring under the symptoms of stone in the bladder. The child suffers very severely each time he attempts to pass water; micturition is effected with much straining, the urine being then voided in but very small quantities, mixed with blood, and containing pus and mucus. The stone was easily detected by sounding, and lithotomy performed immediately after the first patient was removed. After the usual incisions, the stone, which was of an oblong shape, and rounded at one end, was removed by the scoop, as in the former case, this instrument being preferred to the forceps for the reasons above stated. From the peculiar figure of the calculus, Mr. Fergusson was inclined to think that it had been grasped by the opening of the ureter. The progress of this patient was marked by a feature which is seldom observed with young people: he had, namely, several pretty severe attacks of hæmorrhage, but the loss of blood was easily controlled by plugging. All went on well with the exception of this, and about five weeks after the operation the patient was discharged in very good condition.

Being on the subject of hæmorrhage after lithotomy, we would direct the attention of our readers for a few moments to a method of operating proposed and performed by Professor Rizzoli, one of the advantages of which is said to be the non-division of the great perinæal arteries and the prostatic venous plexuses. The operation is described in the August number (1851) of the *Medico-Chirurgical Review*, and is not, as far as we have seen, often performed in this country. The proceedings are described as follows:

The perinæal urethra being well projected out by a very convex sound, the operator commences his incision of the superficial coverings, a few lines behind the base of the scrotum, and carries it to the margin of the anus. Passing the nail of his left thumb or fore-finger under the bulb of the urethra, in order to protect it, he feels for the groove of the sound, and penetrates the anterior part of the membranous portion of the urethra with his lithotome, the ligature or torsion being applied to any of the arterial branches proceeding towards the bulb which, owing to their abnormal development, may bleed too freely. Having implanted his bistoury within the origin of the membranous portion, in order to prevent any injury to the rectum, the surgeon now takes the sound from the assistant, and, raising the handle to a right angle with the pubis, enables the instrument to slide under the arch, rendering the membranous portion prominent, and its division easier, without injuring the rectum. The incision should be carried far enough to scarify the edge of the prostate, as urinary effusions into the cellular tissue of the anterior walls of the pelvis are much more likely to occur when it (the incision) is limited to the membranous portion, and the dilatation of the part by the passage of large calculi is then more difficult.

The incision completed, the operator passes his index finger into the wound, with the palm or surface upwards, guiding it along the groove of the sound into the bladder, and making it serve as a conductor for the passage of the forceps. If the surgeon discover for the first time during the operation that he has to do with a large calculus, it is better to break it prior to the removal, for which purpose Professor Rizzoli has contrived an instrument. He believes the advantages of this method to be, that neither the bladder, rectum, bulb, vasa deferentia, the great perinæal arteries, nor the prostatic venous plexus, are wounded. He has operated upon eight cases with success; in one of these these, there were two calculi, one of which was discharged by an aperture which occurred spontaneously in the perinæum.

Talipes Equinus; Tenotomy, Rectification of the Deformity.

(Under the care of Mr. Partridge.)

Mr. Partridge has lately operated upon two brothers who were each affected with congenital talipes equinus. We need not say that this variety of club-foot is rarely met with, for it is well known that out of perhaps twenty operations for talipes varus, there is hardly one for talipes equinus. As to the two brothers presenting the same congenital defect, may we not suppose that the uterine malposition was owing to some peculiarity of the uterus itself, which has a tendency to produce the same effect at every gestation? No doubt but that a smaller quantity than usual of amniotic fluid may have much influence on congenital defects of this kind.

It is no small triumph of modern surgery, that talipes should now be so easily remedied; we should, however, mention that it is worth while paying the strictest attention to the manner of dividing the tendon (which should be delicate and regular,) and the application of the apparatus after tenotomy; for we have known cases where the non-observance of these rules caused very troublesome sloughing, and inflammation of the whole limb.

Seth Y——, aged twelve, was admitted Feb. 3, 1852, under the care of Mr. Partridge. He is a healthy lad, though thin, and has been much annoyed by the deformity of congenital talipes equinus of the left side; he has walked upon the affected foot from an early age without assistance. The boy treads on all the toes except the great one, the heel being drawn up so far as to bring the instep almost on a straight line with the leg. In front the extensor proprius is so contracted that the great toe is drawn up, and does not come in contact with the ground.

Mr. Partridge divided the tendo-Achillis, four days after admission, and an apparatus, intended to bring the heel downwards and flatten the foot, was put on a few days afterwards. Pressure on the instep caused a little ulceration in that region, but about five weeks after the operation the patient could put his foot flat on the ground. The improvement kept pace for the next few weeks, and about three months after the division of the tendon, the boy could walk with comparative case, very faint traces of the deformity being left.

The second case refers to a brother of the former patient, Lewis Y——, aged ten years. The defect was here likewise congenital, but affecting the right foot, and pretty analogous to what has been described above, except as to the contracted extensor, which was not quite so much drawn up. Both patients were operated on the same day; they progressed pretty well in an analogous manner, and are now both free from their congenital defect.

UNIVERSITY COLLEGE HOSPITAL.

Lithotomy upon a Child two years old.

(Under the care of Mr. ERICHSEN.)

WE dwelt some time ago on the frequency of calculous concretions in the bladder of children belonging to the labouring classes, and we attempted to explain why the offspring of this portion of the community are so obnoxious to stone. We shall not revert to this subject, though well worthy of being further discussed, but confine ourselves to the consideration of the fact that the removing of calculi by the lateral operation in very young subjects is in the majority of cases successful. This is extremely cheering, if we keep in view the frequency of the complaint among poor children of the male sex; but it is well worth inquiring why such is the case.

The limited extent of the incisions, the ready manner in which wounds heal with young subjects, and the generally healthy state of their but partially developed urinary organs, are probably the principal causes which may be assigned. But it would be an error to suppose that no failures occur with these little patients, and that the operation may be looked upon as easy. Far from it; for hæmorrhage now and then proves quickly fatal, convulsions may carry off the little sufferers, and others sink under mere exhaustion. As to the operation, we have heard Mr. Fergusson state repeatedly, that without great care the bladder of the child is very apt to yield before the knife, and even when the neck is divided, to recede from the finger which is to penetrate it, the extraction of the stone becoming thus a very difficult task. The danger of incisions out of proportion with the minuteness of the parts is sufficiently obvious, and still it has occurred to very dexterous operators to wound the rectum and open the neck of the bladder too extensively. We have seen a few instances ending unfavourably, but there is no doubt that success is the rule. We shall soon have to report two interesting cases lately operated upon at King's College Hospital by Mr. Fergusson, the subjects being little boys about six years of age; Mr. Erichsen's patient is, however, considerably younger. We subjoin a few particulars as furnished by Mr. Turle, Mr. Erichsen's house-surgeon:—

John M——, aged two years, was admitted Jan. 19th, 1852, under the care of Mr. Erichsen; he is a small, sickly-looking child, and as his mother was unable to suckle him, he was brought up by hand on port wine and Savoy biscuits. Seven months previous to admission the child had the measles, and from this time some impediment to the flow of urine was noticed. The act of micturition was always attended with loud screaming and constant pulling at the end of the penis—indications of severe pain.

Two days after admission, the child's tongue was clean and moist, his appetite good, and the bowels were freely opened by medicine. The urine, of a pale lemon colour, had an acid reaction, and a copious deposit, which was shown by the microscope to consist entirely of pus-corpuscles. At two P.M., chloroform having been administered, and indisputable evidence of the presence of a calculus obtained by means of the sound, Mr. Erichsen passed a grooved staff of considerable size into the bladder. The child was then tied up in the ordinary posture for lithotomy, and the usual incisions made—the external one being free, and reaching some distance behind the rectum. The bladder was entered without difficulty, the calculus seized, and at once extracted, the hæmorrhage being at the same time very trifling. A small tube was then introduced through the wound into the bladder.

On his removal to bed, the child appearing faint, a tea-spoonful of brandy in water was given to him, and some clear urine flowed from the wound; the latter being cleaned from time to time with a feather. Some time afterwards he was restless and apparently in pain; two minims of Battley's solution were consequently ordered. In the evening the tube was withdrawn, and some small coagula removed from the wound. The next morning, there appearing to be some tendency to adhesion of the surfaces of the wound, a thin piece of oiled lint was passed into it as far as the bladder. The patient continued to progress most favourably, his general health also improving considerably; the loud screaming and other evidences of pain no longer accompanying micturition. On the twelfth day (Feb. 2nd) after the operation, the urine issued by the natural passage, and continued to do so afterwards, the quantity escaping by the perinæal opening decreasing gradually; the surfaces of this wound, being somewhat flabby, were occasionally stimulated with nitrate of silver. About a week after this, the opening in the perinæum would barely admit a pin; it was touched with nitric acid, and the little patient was soon afterwards discharged cured.

Examination of the stone.—The calculus was elongated, tapering more at one extremity than at the opposite, and measured one inch and one-eighth by rather more than half an inch; its surface was irregularly tuberculated and granulated; it had an exterior thin crust of a pale reddish-brown colour, and a white spongy interior. Examined chemically, it was found to consist of uric acid, ammonia, and an inorganic ash, insoluble in nitric and hydrochloric acid.

Being on the subject of calculi in children, we shall just allude to another case lately treated by Mr. Erichsen, and which proves that, under certain circumstances, there is a tendency, with these young patients, to the expulsion of the stone per urethram. Indeed, considering the small size of these foreign bodies, it is strange that such a natural process does not oftener take place, and one would almost be inclined to suspect that it really does occur pretty frequently, but that the passage of the stone remains unnoticed by the little patients. However this may be, it is well known that symptoms of gravel are not very rare among little boys; and as there is a great chance, by suitable medicines and a change of air and diet, to arrest the further formation of calculous matter, the symptoms should be always closely inquired after. Nor is it to be forgotten, that it is almost useless to subject a child to the operation of lithotomy, if means are not subsequently taken to work a thorough change in the habits, diet, and management of the little patient.

Impaction of a Calculus in the Urethra of a little Boy.

(Under the care of Mr. ERICHSEN.)

George W——, aged four years, son of a labourer, was admitted January 2, 1852, under the care of Mr. Erichsen. During the two or three months preceding his admission, he occasionally suffered from retention of urine, for which he was taken to a dispensary to have a catheter passed. When brought to this hospital, it was discovered that he had a calculus impacted in the urethra, in the vicinity of the bulb. On the day of his entering the hospital, he was held by assistants in the same position as for lithotomy, and chloroform having been given, Mr. Erichsen passed a grooved staff into the urethra, as far as the stone. An incision was then made in the perinæum over the staff, and the calculus having been thus reached was readily removed. Mr. Erichsen then passed the instrument into the bladder, but no additional stone could be detected. Lint was applied over the wound, and then a compress and T-shaped bandage.

In the evening slight œdema of the scrotum occurred, the urine escaping chiefly through the perinæal aperture. During the next few days there was considerable swelling, with induration of the scrotum, the margins of the wound appearing somewhat sloughy. Poultices and hot fomentations were applied, and gave great relief; the œdema diminished, and a purulent discharge was established. As the greater part of the urine came away through the abnormal opening, Mr. Erichsen directed that its margins should be touched with nitrate of silver, and a small catheter passed daily. The size of the wound gradually diminished under this treatment; the quantity of urine escaping through it also decreased; and on Feb. 10, one month after admission, scarcely any urine issued in that way. The child was soon afterwards made an out-patient.

The stone was of a somewhat fusiform shape, about two-thirds of an inch long, and one-third broad. Its surface, in one part, was rough; it was hard, and appeared to consist of uric acid.

As it may be both useful and interesting to note how young a child may be subjected to the operation of lithotomy, we shall further illustrate the matter by adducing a case operated on by Mr. Coulson, where the little patient was only *one year and eleven months old.*

LONDON HOSPITAL.

Aneurism of the Abdominal Aorta, connected with Pain in the Inferior Extremity, supposed to be Rheumatic. Death. Autopsy.

(Under the care of Dr. Little.)

Among the perplexing problems which occasionally present themselves in the practice of medicine, there is one which often calls the whole of the physician's skill and ingenuity into play. We allude to the task of finding out, in a given case, whether the symptoms presented are simply the manifestations of a disease or derangement which is generally characterised by such symptoms; or whether the latter are unconnected with that disease, and depend on totally different pathological alterations, with which they may have a distant connexion. Among the numerous examples which might be quoted to illustrate the kind of difficulty which we are mentioning, we would just direct our reader's attention for a moment to the many deceptive symptoms to which aneurism of the abdominal aorta may give rise.

According to the viscera or regions of the abdomen upon which the tumour may chance to exercise pressure, there may be either neuralgia, constipation, pain in the loins and the lower extremities, dyspnœa, dyspepsia, &c. Now if the tumour be small, or the patient very fat, the actual nature of the disease and cause of the symptoms may long escape attention; and when, in the case of females, the abnormal sensations are not removed by ordinary means, the symptoms are mostly ascribed to hysteria. Pain in the hip and lower extremity, exactly simulating rheumatism, has pretty often been found to depend on the pressure of an aneurismal tumour on the lumbar nerves as they emerge from the vertebral column and we purpose to present this day a most instructive instance of such connexion.* To place such cases upon record is, we venture to think, extremely useful, as it tends to keep the mind of medical practitioners alive to the necessity of thoroughly investigating both anomalous and seemingly simple cases, so as to arrive, if possible, at the true cause and origin of the symptoms.

We were very much struck with a case which lately came to our knowledge in private practice, where a gentleman of middle age complained of slight numbness and dragging of the left leg, with pains in the joints of the limb. The idea of rheumatism, and subsequently of incipient paralysis, arose in the physician's mind, and plans of treatment in keeping with this diagnosis were adopted, with some benefit to the patient. An accidental examination of the abdomen disclosed, however, the existence of a pulsating tumour just over the commencement of the abdominal aorta; and this led to a material modification of the diagnosis. Every one is, of course, aware that every pulsating abdominal tumour is not invariably of an aneurismal nature; but when such a tumour is discovered in cases where supposed rheumatismal or neuralgic pains have existed, it may be inferred that the pressure of the tumour, of whatever character the latter may be, has more or less influence on the symptoms. The following case, noted by Mr. Hall, is especially valuable as illustrating the connexion between aneurism of the abdominal aorta and rheumatic pains of the lower extremity.

Charles R——, aged thirty-two years, married, and a tailor by trade, was admitted into Harrison's ward, under the care of Dr. Little, June 29th, 1851. The patient is of spare habit of body, evidently emaciated from some exhausting disease; he is greatly debilitated, and wears much anxiety in his countenance. His present illness commenced about two years since; previously he had always enjoyed good health. His father died from some disease of the heart, and one of his brothers is subject to violent palpitations. In his habits the patient has been very intemperate, given to excesses in drinking gin, and by his trade he led a sedentary life.

The present illness began about two years before admission, and it arose, as the patient supposes, from an attempt he made of carrying a chest of drawers partly filled with linen up a flight of steps. After this effort he was almost directly seized with sharp and severe pains across the loins, which were, however, removed by rest and embrocations. Since this occurrence he has been subject to frequent paroxysmal attacks of pain in the hip, knee, and foot of the left side, as also to palpitations of the heart, attended by dyspnœa. He had several times been treated, from these symptoms, for acute rheumatism, and as in the present attack he could obtain no relief, he was induced to seek assistance at this hospital.

The signs now presented having considerable resemblance to rheumatism, he was placed on milk diet and beef-tea; a gentle saline antimonial mixture was prescribed, and strict rest in bed enjoined. This treatment was continued for thirteen days, when the patient found himself much better; and as he expressed himself as being strong enough to return to his ordinary duties. Dr. Little gave him permission to return home in the course of a few days, should nothing prevent him.

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* We cannot refrain from quoting here a case related by Mr. Fenwick, in a former number of The Lancet, and cited in Mr. Coulson's work on the Diseases of the Bladder. The existence o aneurism of the abdominal aorta gave rise to many symptoms of stone in the bladder. A sound was introduced, but no calculus was discovered, and there was nothing in the case which created a suspicion that the disease was aneurism. The patient soon after died of sudden exhaustion, at the hospital at Newcastle-upon-Tyne, and an aneurism of the abdominal aorta, about the size of an orange, was found upon inspection, the abdomen being filled with blood by the rupture of the sac. There was no calculus in the bladder, and no disease in any portion of the urinary organs.

The day following, the man endeavoured to take a little exercise, and walked about the place, with some degree of labour, but no particular pain. He continued so for two days, when, on going across the ward, he felt his left leg become on a sudden almost powerless, which circumstance made him stagger so much that he at once retired to bed. From that change, all the patient's suffering returned with renewed intensity; no thoracic pain was complained of, but all the agony referred to the hip, knee, and ankle. For the next five days, palliative means were employed, at the expiration of which (being twenty days after admission) the pain in the hip suddenly increased, and the left limb could no longer be flexed or extended, though its sensibility was not materially diminished. Passive motion of the thigh gave much pain on flexion, and disclosed much stiffness in the part. Dr. Little now prescribed five grains of iodide of potassium, to be taken three times a day, and desired the hip-joint to be painted over with tincture of iodine.

On the evening of the same day, the patient was found lying on his right side, with his thighs flexed, and giving utterance to his sufferings in suppressed groans. When questioned, he pointed to his left hip as the seat of pain, adding that it reached over the ilium, and extended into the pelvis. A certain amount of pulsation was now traced above the crest of the left ilium, and this pulsation was found to increase in force and distinctness as the hand was gradually carried upwards as far as the cartilages of the last true ribs. On now making firm and steady pressure, a large, resisting, and well-defined tumour could be felt, which pulsated synchronously with the heart, and seemed to reach from beneath the ribs down into the pelvic space. The stethoscope was applied over the tumour, when a loud and distinct bellows sound was distinguished; this *bruit* was somewhat harsh, and resembled the whirring of a large wheel in rapid motion.*

The pressure used for this examination afforded the patient some ease. The cardiac sounds were somewhat subdued and irregular, the second being rather rough and intermittent; and a peculiar, lancinating, deep-seated, and burning pain was felt in and near the tumour; pulse 96, rather irregular and compressible. The countenance soon became anxious, the voice feeble, the eyes brilliant and the patient expressed himself as being in a dangerous state. He became gradually worse as the night advanced, and died at six in the morning.

The inspection was made twelve hours after death. The abdominal region is a little collapsed, especially on the right side; the left is somewhat higher, and a firm, hard, and oblong tumour, by a little pressure being used, can be felt through the parietes, filling up this space. On the chest being opened, the lungs were found healthy, and the heart slightly affected with concentric hypertrophy. The recti abdominis and other muscles were pale, and slightly atrophied; between the peritonæum, internal oblique, and transverse muscles, there is a layer of coagulated blood, about three quarters of an inch thick, reaching nearly up to the umbilicus, and extending round the lower part of the whole space. On reflecting the whole of the anterior walls of the abdomen, the omentum was seen shrivelled, and closely applied to the transverse colon, the small intestines being displaced over to the right side, and much distended with air. The left side of the abdominal cavity is completely occupied by an oblong, firm, dark-coloured and smooth mass, which above is covered by the cartilages of the last ribs, and rests below on the alæ of the ilium. In front, it is covered by the thickened and discoloured peritonæum; and above, firmly adherent to the cardiac end of the stomach and the spleen. Posteriorly, the tumour is rather closely incorporated with the muscular structures of the loins; and internally it rests on the lumbar and lower dorsal vertebræ. Between this inner and posterior surface, the aneurismal sac is ruptured, and the fingers may readily be passed into its interior through two or three rather large and ragged openings.

At the upper end of the tumour the thoracic aorta is seen to enter it, and at the lower extremity of the sac the abdominal aorta emerges from it, almost immediately dividing into the two common iliac arteries. The abdomen is filled with three or four pints of deep blood-coloured serous fluid; and on removing the aneurismal mass, it was found of an oblong shape, and weighing, with the appendages, six pounds and two ounces. The sac was evidently formed of an expansion of the aorta, the vessel being dilated into two irregularly shaped pouches of different sizes. The smaller appears to be of secondary formation, and is situated on the upper and left side of the larger sac; the latter is formed by the dilatation of two-thirds of the abdominal aorta, the tumour reaching down to the origin of the renal arteries. Both aneurisms were filled with coagula and fibrinous clots, and were ruptured in a very irregular manner; the larger communicated somewhat indirectly with the smaller sac; the interior of the former had a corrugated arrangement, and was of a palish yellow colour.

To the left of the aorta is another large mass, which at its upper third has a firm, somewhat elastic feel, the lower two-thirds being harder and less elastic. To the upper and posterior part of this tumour the diaphragm is attached; just below this connexion the tumour presents an irregular lacerated opening, communicating with its interior, and this opening is directly related to the solution of continuity in the principal arterial tumour. The cavity of this—third sac—is filled with deep-coloured and firm coagula; the lower part consists of a quantity of fibrine and clotted blood, with portions of the psoas and iliacus internus; and on the removal of a considerable portion of these, the left kidney and part of the ureter were found firmly imbedded in the mass. This false aneurismal sac appears to have been formed by an extravasation of blood from the artery—the former passing up between the reflected portions of the peritonæum and the fascia transversalis, thus becoming its anterior wall, and gradually distending these structures. This cavity held about twelve or fourteen ounces of blood. The bodies of the last dorsal and first and second lumbar vertebræ were absorbed to the depth of a quarter of an inch on their left side, the first lumbar being completely excavated; but the intervertebral cartilages projected forwards, and appeared unaffected.

WESTMINSTER HOSPITAL.

Treatment of Ulcers by the Exclusion of Atmospheric Air.

(Under the care of Mr. Holt.)

The treatment of ulcers, especially of those which are situated on the lower extremities, has of late years attracted much attention; and the various methods which have by turns been introduced have all more or less contributed to expedite the healing of sores. Among these we would especially mention the strapping system, as strongly advocated by Mr. Crichett, of the London Hospital. By this treatment patients have the great advantage of being allowed to walk about, and attend to their calling, exercise not retarding, when the leg is well strapped, the work of cicatrization. Gentle and well-regulated support is still advantageous, even where patients are kept in bed, applications to the ulcers being then of course varied according as the latter are acute or chronic, irritable or indolent, &c. But it would appear, from what we saw at the Westminster Hospital, that besides rest and gentle pressure, the exclusion of atmospheric air, and very rare dressing, are conducive to the most satisfactory results; and not only are the sores thus healed with great certainty, but likewise in a comparatively short time.

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* This harsh sound is well known to be almost pathognomonic of the existence of aneurism.

At first one is inclined to believe that the accumulation of the purulent secretion must be very prejudicial when ulcerated surfaces are tightly sealed up; but it seems that the exclusion of air has the tendency of considerably diminishing the discharge of pus, as we have known ulcers upon some of Mr. Holt's patients to be closed up with oiled silk and collodion for a week or more, and remain comparatively dry. Among the cases which have thus been treated we shall just give a sketch of the two following:—

Case 1.—Henry H——, aged 38, was admitted under the care of Mr. Holt, January 13, 1852. The patient is a carpenter, and states that five years before his admission an ulcer formed by the side of his left tibia after a very severe attack of rheumatism. He tried to heal it by various means, but did not succeed, and about one year before his reception into this institution he went to the Middlesex Hospital, with an ulcer of the size of the hand, and one-eighth of an inch deep. By lotions of sulphate of copper, rest, and a roller, the sore was reduced to the size of a sixpenny-piece. He was discharged, and went to work, and in the space of three or four days the ulcer had again reached its original size. He treated himself for a little while, but soon applied at this hospital, where the sore was first poulticed for three or four days. When the inflammation had been subdued, the ulcer was dressed in the following way:—

From a piece of adhesive plaster, somewhat larger than the sore, a portion, just the size of the latter, is cut out; the plaster is then applied to the part, and painted with collodion. Oiled silk is now placed over the ulcer, and made to adhere to the plaster by means of the collodion, by which process the air is completely excluded from the ulcerated surface. The whole is then secured by strips of adhesive plaster placed crosswise, and by a roller running from the toes to above the knee.

This dressing used to be left undisturbed for a week or ten days, and by being taken off with care did not give the least pain. The patient remained in the meanwhile mostly in bed, and had good diet. On the 23rd of March, about nine weeks after admission, the sore was completely healed, but by walking up and down stairs it re-opened to the size of a fourpenny-piece. The same kind of dressing was continued, and in a fortnight the patient was discharged, the ulcer being quite cicatrized.

Case 2.—Richard C——, a labourer, aged forty, was admitted March 12, 1852, under the care of Mr. Holt. The patient had been run over the loins by a cart, and had escaped without much injury. Whilst under treatment he complained of an old ulcer on his right leg, about the size of the palm of the hand. Poultices were applied for a few days to subdue inflammation, and the same kind of dressing as described above, was employed. This patient, however, was allowed to leave his bed, and walk about the ward. In the space of three weeks the sore was healed, and the man has been discharged.

Mr. Holt has treated numerous patients in this manner with perfect success. We, however, noticed one case of very chronic ulcer (of twenty years' standing,) under the care of Mr. Phillips, which, from some peculiarity of constitution, did not benefit by the treatment. Ulcers of the lower extremities are so common, that we gladly acquaint our readers with the above-mentioned line of practice, as it has in many cases been found to act very beneficially.

MIDDLESEX HOSPITAL.

Fracture of the Tubercle of the Tibia. Case of Fracture of the Patella, with an Anchylosed Knee.

(Under the care of Mr. Campbell De Morgan and Mr. Shaw.)

It is customary for systematic writers on surgery, when treating of fractures and dislocation, to infer, from the experience of previous cases, which bones and what part of them, are most likely to be fractured in a given accident. The rules given by these authors are certainly very useful; but it should always be understood that the whole, or a portion of a bone, may become more liable to fracture by alterations in its intimate structure occasioned by cancer, scrofula, scurvy, or the poison of syphilis. If, for instance, we consider for a moment the very common accident of tripping, which is so often followed by fracture of the patella, we shall find that the muscular force which in these cases causes the breaking of that sesamoid bone, may be exerted towards another portion of extensor cruris muscle, where the structure has been changed by disease and the powers of resistance consequently lessened. A very instructive instance of such phenomena was lately afforded by a patient of Mr. De Morgan, for the tripping caused neither fracture of the patella nor rupture of its ligament, but a giving way of the tubercle of the tibia, which process must, according to all appearance, have been somewhat modified in its cancellous structure by the scrofulous diathesis under which the patient is evidently labouring. The facts are shortly these:—

William C——, aged seventeen years, and a tailor by trade, was admitted April 7th, 1852, under the care of Mr. De Morgan. The patient is thin and pale, and has numerous cicatrices around his neck resulting from scrofulous abscesses. There is also a depressed cicatrix on the forehead, a consequence of an extensive loss of osseous substance; the wound and subsequent necrosis having followed on a fall upon some bricks when the patient was twelve years of age. This circumstance only, were there not many other signs of the scrofulous diathesis present, would show how readily diseased action can be excited in this boy. Another peculiarity of aspect is a very dark tinge of sclerotic, which must be extremely thin, to allow the choroid coat to be so plainly distinguished through it: this state of parts is said by the patient to be common in his family.

It appears that on the day of admission the patient tripped while running; he did not fall, but felt a severe pain over the knee. He was able after this to walk about a hundred yards, but could then proceed no further, and was brought to the hospital in a cab. On examination, it was found that the patella was not fractured, but that its tendon had exerted sufficient force on the tubercle of the tibia to break off that process from its attachment to the bone. The tubercle could be easily felt attached to the ligament, and lying much higher than the corresponding process on the other leg. The violence which the parts had suffered caused a considerable effusion, both of serum and blood, judging from the dark colour of the part. The patient's limb was placed at an obtuse angle with the trunk, as is done in fracture of the patella, and fourteen leeches applied, as he complained of great pain. Local abstraction of blood was repeated several times afterwards, when the symptoms began to give way. Consolidation has now begun, and though the joint is somewhat swollen, it is very probable that the patient will, at no distant period, recover the full use of his leg.

It may naturally be inferred that the tubercle of the tibia, and perhaps a portion of the upper part of the bone, are altered by interstitial deposition of morbid substances, and that the force which in general causes the patella to give way has in this case produced this unusual fracture.

Being on the subject of fracture of the patella, we shall just mention the case of a patient now under the care of Mr. Shaw. From the circumstances of this case, it would appear that tripping, with an anchylosed knee, may produce fracture of the patella; though it is of course to be supposed that, the latter bone being fixed, a greater muscular force will be required to break it asunder, than when the joint is free. The patient, a woman about forty years old, has had anchylosis of the knee-joint for the last seventeen years; whilst walking rather hurriedly, she tripped, felt severe pain in the knee, and could not get any further. She was taken to University College Hospital, where it was found that the patella was fractured. She did not, however, stay sufficiently long in that institution to allow the parts to unite; she would return home a fortnight after admission, and as might have been foreseen, broke the slight ligamentous band of connexion between the fragments upon a very trifling exertion.

The patient was now brought to Middlesex Hospital, when it was found that the upper fragment was fixed over the condyles, and the lower one (a little movable) separated from it for the space of about one inch. Mr. Shaw resolved to treat the case like ordinary fracture of the patella, and to favour as much as possible the complete anchylosis of the joint.

The Royal Hospitals for the City of London.—On the 12th ult., the annual report of the number of children and other poor persons maintained in the several Royal Hospitals of the City of London, was read before the Right Hon. the Lord Mayor, aldermen, &c., at the anniversary meeting in the large hall of the Mansion-house.

Death of Mr. Dalrymple.—It is with profound regret, that we announce the decease of Mr. John Dalrymple, of Grosvenor-street, at a quarter before ten, on Sunday the 2nd inst.—a regret in which all who know his worth will readily sympathize. Like his eminent predecessor, Frederick Tyrrell, he has been cut off in the flower of his age and the height of his usefulness, just when reaping the reward of his long and meritorious labours in the field of ophthalmic science. Mr. Dalrymple was an able microscopist, and contributed some valuable papers to the Royal Society; but his *magnum opus* was his noble work on the Pathology, of the Eye, which will be an enduring monument to his fame, and which he only just lived to complete. Mr. Dalrymple had suffered, for several years past, from attacks of pneumonia and bronchitis, which frequently rendered him unable to attend to practice, but he died of albuminuria.

Biographical Sketch
OF
JAMES RANALD MARTIN, ESQ., F.R.S.
SURGEON IN THE BENGAL ARMY,
AND LATE PRESIDENCY SURGEON AND SURGEON TO THE NATIVE HOSPITAL OF CALCUTTA.

James Ranald Martin was born in the Isle of Skye. He belongs to one of the oldest families in this, the largest of the Western Islands. His father was the Rev. Donald Martin, and his mother was eldest daughter of Norman Macdonald, Esq., of Scalpa, and sister of the late Lieut.-Gen. Sir John Macdonald, G.C.B., Adjutant-General of her Majesty's Forces.

The subject of this memoir lost the best of mothers in 1803, while in his infancy, and his father a few years subsequently removed from the Isle of Skye, the country of his ancestors, to the capital of the county, Inverness. This removal was caused by Mr. Martin's desire to escape from the scene of his bereavement, and by a wish to superintend more effectually the education of his children. While in the Island of Skye, during the early boyhood of James Ranald, the education of the three sons was conducted by a tutor, under the superintendence of their father, a pious and learned gentleman. Here they were taught the elements of a sound education. On arriving at Inverness, James and his younger brother, Norman, were placed in the Royal Academy of that town, their elder brother having, previously to this, entered the Royal Academy at Woolwich.

When he grew to the age of sixteen, he came to the question what profession he should enter. It had always been determined that he should go into the army, but his father expressed the wish that only one of his sons should follow the profession of arms; otherwise, a commission in the 42nd or Royal Highland Regiment was in readiness, the regiment afterwards commanded by his distinguished uncle. After a painful struggle, the youth gave way to the wishes of his father and maternal grandfather, but only upon the compromise that he should become a surgeon, and enter the army in that capacity. His studies at the academy went on, and to them were added, during his last two years' residence at Inverness, elementary instruction in medicine and pharmacy, under the direction of Drs. Robertson and MacDonald. The former was a physician of great experience, and a thorough gentleman, and the latter an able practitioner. Both gentlemen entertained the most friendly regard for their pupil, who, in his turn, has never ceased to feel indebted to them. In the year 1813, he came to London from Inverness, and entered himself as a perpetual pupil at St. George's Hospital. Here he was first under Sir Everard Home, and then under Mr. Brodie, carrying on his other medical and surgical studies in the school at Windmill-street, superintended by Messrs. Wilson and Charles Bell.

Mr. Martin passed his examination at the College, October, 1816. He remained some months at London, after which he went down to Inverness. His father was now about to remove into Morayshire, his purpose in residing at Inverness having been accomplished. Mr. Martin took a hasty and final leave of his family, and embarked for India, in June, 1817, on board the ship *Lord Hungerford*, from London to Calcutta. His commission of assistant-surgeon was obtained through the interest of his uncle, Sir John MacDonald. During the voyage an intimacy arose between the young assistant-surgeon and Captain Sneyd, of the Bengal Cavalry, which terminated only with the death of that distinguished and estimable officer. Now commenced his Indian career. He landed in Calcutta on the 2nd of December, 1817, after a voyage of nearly six months, and was immediately ordered to do duty at the Presidency General Hospital, where Europeans only are treated. Here he performed a probationary course of some months' duration.

In 1818 he served with his Majesty's 17th and 59th Regiments then forming the garrison of Fort William. After a short time he was nominated assistant garrison surgeon of Fort William. Here Mr. Martin first encountered that scourge, then confined to India—epidemic Cholera. While in charge of a large detachment of his Majesty's 67th Regiment in the bombproof barracks of Fort William, this disease made terrible havoc there and elsewhere. For a fortnight the assistant garrison surgeon had hardly any hours of rest, and on three occasions during that time he was carried out of the sick barrack, cold and faint; but the idea of his being seized with the disease never entered his mind, and thus, he thinks, he escaped. In the rainy season of this year Mr. Martin was ordered to the district of Cuttack, in the province of Orissa, then in a state of actual rebellion. Here he served in various mountain operations, under much hardship and grievous sickness, during this and a great part of the following year. A circumstance occurred at this time which was highly characteristic of the ripening mind of the young surgeon, and one of many of a similar important character, which were destined to mark his future career. At this point his public professional life really began. While serving with the more advanced forces of the district the detachment became so unfit for duty through sickness, that its relief was ordered; but previously to carrying this measure into effect, General Thomas, the general commanding the division, desired Mr. Martin to state the circumstances which, in his opinion, caused the excessive sickness of the detachment. He reported certain circumstances of a highly injurious character in the manner of conducting the duties and in the treatment of the men. These errors were immediately corrected by order of the General, and the troops speedily became healthy. The relief was consequently countermanded. Throughout this military service, Mr. Martin so conducted himself as to command the esteem of his brother officers and the enthusiastic attachment of the Sepoys. While with the above detachments an incident occurred which showed his determination, at any risk to himself, to defend the Native soldiery under his charge. It was the custom of Captain, afterwards Col. ——, one of the worst of petty tyrants, a man of the most cold and cruel vindictiveness, to strip and flog the Sepoys upon parade, without form of trial. While Mr. Martin was conducting his duties, two fine grenadiers thus maltreated came into hospital with their backs bleeding. They called loudly for redress; but he pointed out to them that his duties were limited to their treatment and cure, and that thus far only were they under his protection; but Lieutenants —— and ——, commanding their companies, were bound to represent their grievance through Captain —— to the General Officer. Such mode of redress seemed so hopeless, that the Sepoys sank back on their cots in despair. Mr. Martin thought it right to mention this circumstance publicly at the mess to Captain ——, whose brutal reply was characteristic of his petty and tyrannical mind. "By — I will have them out to-morrow and flog them again." "Then, sir," said Mr. Martin, "it shall be at your peril, for I will instantly report the circumstance to the General Officer commanding." A silence now prevailed, and the small mess-room, in a hut in the mountains, was soon vacated. It was generally expected that a personal communication would be received by Mr. Martin from his commanding-officer, Captain ——; but the latter thought better of it, and swallowed the severe reproof of the assistant-surgeon, the youngest officer of the detachment. We need not say that this example of his firmness spread through the whole district, and raised him high in the opinion of his fellow officers, civil and military. We may here mention another point, which is highly illustrative of Mr. Martin's character. A malignant fever had prevailed for a long time in the neighbouring city of Ganjam, which had destroyed more than half its inhabitants, and all its commerce. Two medical officers had been deputed by the government of Madras to ascertain its cause, and to devise the best means to counteract this pestilence; but in the execution of that duty they both died, leaving the task unfinished. Mr. Martin volunteered his services for this important duty, but they were not accepted by those in authority. The common objection of a seniority service was raised: he was considered "too young," and so the perilous service passed him by.

At the close of 1819, Mr. Martin was removed to the post of officiating first assistant to the General Hospital, Calcutta. He at once applied himself to the consideration of the diseases of Europeans in India, natives of Europe being the only patients admitted into the hospital. Here he first studied the history, nature, and causes of tropical disease with reference to the European constitution. But the office being only an officiating one, he was relieved in 1820, when he was ordered to assume the charge of the Ramghur battalion, then engaged in the field against the savage hill-tribes in the mountains of Singboom and Sumbhulpore, in the province of Gundwana, countries nowhere surpassed for insalubrity. Here it was that he contracted his first illness in India, a violent jungle remittent fever. In the first paroxysm he was overpowered by stupor, and his life was saved on that and the subsequent day by a spontaneous epistaxis to an enormous extent. He was himself the only medical officer within hundreds of miles of the locality, and was consequently destitute of all medical care. In this unhealthy locality he first observed that the entire range of hills, extending from Midnapore to Sumbuhlpore, were ferruginous, the springs and many streams being coloured red with iron. The charge of the battalion would have been one of great pecuniary advantage, could Mr. Martin have retained his health; but during ten months that he continued with it, he was scarcely fit for duty six weeks. Arriving at Sumbhulpore in the month of June, he had himself carried to inspect the localities, and immediately declared to the commanding officer, that a preference should be given to the dry and elevated bank of the Mahanuddy. But the major in command, though of great distinction and humanity, rejected this advice, and placed the corps in a deadly marsh, inland, where, during the ensuing rainy season, the mortality was terrible. In the month of September, a malignant intermittent fever reigned in the cantonment, and the commanding officer himself nearly sank under an attack of the disease. In the following month Mr. Martin was seized with this malignant intermittent, and his danger was so great that his brother officers fitted out a boat, and had him floated down the river. He arrived at the station at Cuttack, in Orissa, but in a state of the most extreme exhaustion. Major —— possessed military and social qualities of the highest order: he was kind, generous, and liberal to profusion, but, wanting that information possessed by his youthful medical officer, he did an amount of mischief to his men and officers immeasurably greater than did the tyrant under whom Mr. Martin had served in the previous year. These circumstances are mentioned, to show that very early in life Mr. Martin devoted his attention to what must ever be considered as the first duty of a military surgeon the most useful to the state and to our fleets and armies—namely, the prevention of disease.

It was while serving in Orissa and Gundwana, in an irregular mountain warfare, frequently under fire from an unseen enemy, that the mind of the youthful surgeon first revolted against the injustice and exclusion from military rewards with which the army surgeon was treated—the hard inequality of his position and prospects.

In 1821, on arriving in Calcutta, and when his health was sufficiently restored, he was presented to the Governor-General of India, the Marquess of Hastings, who received him with much kindness, and appointed him to the medical charge of his Body-guard, an office both of distinction and emolument to so young an officer, and one which had just been vacated by a veteran surgeon. This was the first turning point of his fortunes. Here, in the cantonment of his new corps, Mr. Martin instituted extensive sanitary improvements, though opposed by the Medical Board of Bengal in their official Reports. The Marquess of Hastings, having heard both the medical statements, ordered Mr. Martin into his presence, and having entirely approved and confirmed his views, the Governor-General ordered the improvement of the regimental hospital, of the men's huts, the construction of tanks for pure water, and the draining, clearing, and levelling of the entire cantonment. In this way, Mr. Martin's statements received from this eminent soldier-statesman their due consideration and adoption.

Mr. Martin's health continued so shattered, at the beginning of 1822, by the fevers of the year previous, that in March of this year he was ordered to proceed to sea for the recovery of his health, and took passage in a ship then sailing for the Isle of France. Here we must refer to a very remarkable incident. Mr. Martin had formed an intimate friendship, while serving in Orissa, with Lieutenant Randle Jackson, of the Bengal Artillery, at this time aide-de-camp to the Marquess of Hastings. Captain Jackson was also ill, and he begged Mr. Martin to postpone his departure for a fortnight, when he would accompany him. It thus happened that Mr. Martin's life, and probably the lives of both friends, were saved. Of three ships which left Calcutta for the Isle of France at this time, they were fortunately in the sole survivor. It was the hurricane season off the Mauritius, and the ship in which Mr. Martin had first taken his passage foundered off that island, as did also the last of the three ships. Captain Jackson died off St. Helena, twelve years afterwards, when coming home to England to the inheritance of an enormous fortune. On recovering his health, in 1823, Mr. Martin returned from the Mauritius, and rejoined the Body-guard in Calcutta, when he was selected by the then Governor-General, Lord Amherst, to proceed to Hyderabad, to afford professional aid to the Resident, Sir Charles Metcalfe, then dangerously ill of a disease requiring surgical aid. On the successful completion of this duty, he returned to Bengal, accompanied by Sir Charles Metcalfe. After remaining some months in Calcutta, Sir Charles Metcalfe, then about to return to Hyderabad, proposed that Mr. Martin should accompany him in a professional capacity. He had formed a friendship with his talented medical attendant, which ended only with the life of the former; but on consultation with his friends, Mr. Martin, though with many regrets, determined not to quit Calcutta.

After this temporary service in the south of India, Mr. Martin returned to his corps, with which, during the two years following, he was associated in many perils, both by sea and land. It is worthy of remark, that the Governor-General's Body-guard, though composed of picked men from the cavalry of the line, and a privileged corps, had on two memorable occasions volunteered to proceed beyond sea, first to the capture of Java, and next on the expedition to Rangoon. It was while preparing to embark for the latter destination that the corps was suddenly summoned to the suppression of an open mutiny on the part of the 47th Regiment Native Infantry, at Barrackpore, sixteen miles from Calcutta, a memorable event in the annals of the Indian army. Into the mismanagements of this disastrous event, it is not now proposed to enter; sufficient is it to say, that the Body-guard, when charging down on the mutineers, had two men and two horses destroyed by our own artillery.

At this date, Mr. Martin had for the first time been introduced into private practice in Calcutta, by Mr. Nicolson, for many years the most eminent practitioner of that metropolis. Throughout Mr. Martin's career, this gentleman was ever his best friend. Under these circumstances, entrusted with Mr. Nicolson's practice, who had left Calcutta on account of sickness, Mr. Martin might, like many others, have obtained leave to remain behind; but this he scorned to do, and he yielded up the advantage of his friend and his own interest willingly, to the performance of public duty. Early in December, 1824, the transport containing the head-quarters of the Body-guard, under its commander, Captain Sneyd, proceeded to sea, and by the 25th of the month anchored in the bay of Rangoon, and here a terrible disaster awaited the vessel. At midnight of the 24th, while swinging to the tide, which then ran at the rate of ten knots an hour, the ship struck on a reef, and fell upon her beam-ends, so that in a few minutes the sea pouring into the three hatches, filled the ship, so as to drown all the horses on the lee side of the lower deck. The night was intensely dark, and the guns of distress brought no succour, for against so rapid a tide no rowers could move. The ship was chiefly loaded with shells and cannon-balls, which rolled over and fixed her on her beam-ends, and so rapid had been the lurch, that in going over, several of the troopers of the Body-guard, many of the camp-followers, and even some of the crew, were washed off the decks. A hurried consultation was held with the captain, who proposed to lower the boats, but to this Captain Sneyd and Mr. Martin objected that they were on the enemy's coast, and that to land would be to be crucified or burnt to death in damp cotton, the modes of death adopted by the Burmese towards their prisoners. The captain of the ship then suggested, that cutting away the masts might so far relieve the ship as to raise the hatches out of the sea, and it was instantly agreed by Captain Sneyd and Mr. Martin, that they two should proceed below amongst the horses in search of the arm-chest of the Body-guard, for none of the crew could anywhere be found. Wading above the middle in water in the narrow middle passage between the two ranges of horses, with the neck nearly perpendicular, they made their way, and then an unexpected and dangerous impediment presented itself. Two horses on the upper range having broken the band which kept them in their stalls, and fallen head over heels, were kicking out the brains of the drowned horses below them To cross over the bodies of these furious animals, plunging with armed hoofs, was no easy task; and Mr. Martin being the younger and more active of the two, was the first to spring over and lend a hand to his commander, whose candle went out in the exertion. The second horse was passed in the same manner, and the arm-chest was at length reached. Through the portion of the main hatch not occupied by the sea, sabres and hatchets were thrown up to the troopers of the corps by their officers, and they were instantly set to work to cut the rigging. Whilst this operation was going on, voices were heard in the tops, which proved to proceed from some of the crew, who had taken refuge there. As an example of the terrors of the night, these unhappy men could not be persuaded to descend, and within a few minutes they were all consigned to the deep by the falling overboard of the three masts. Previously to this, Captain Sneyd and Mr. Martin were hoisted on deck, under a general cheer from all the men, European and Native, for through their example, orders, and personal exertions, the ship, though full of water, had now sufficiently righted to clear her hatches of the sea. Matters remained in this state till daylight, when the tide being slackened, Admiral Sir James Brisbane sent men-of-wars' boats to the rescue. The conduct of the troopers of the Body-guard—men who till now had never seen the sea, one half of them Brahmins, and the other half Mahometans—was on this trying occasion beyond praise. It seemed as if the instinct of discipline overcame the instincts of nature, and all went on as if on parade.

The losses in this disaster were severely felt. Several troopers who were in sound sleep in the long-boat, and many camp-followers, went overboard. All the tents of the corps, with a large portion of the regimental and medical stores, were washed off the upper deck, while thirty horses were drowned on the lower deck, and in an enemy's country none of these could be replaced. But of the hardships and privations of the subsequent campaigns in Ava this is not the place to speak. They were of a severity unusual in modern war, and the sanitary results alone afford a terrible and memorable lesson of the evils resulting from the absence of civil arrangement in the concerns of armies. The mismanagements of the Walcheren expedition caused the destruction of thirty-two per cent. of those engaged; but the like causes destroyed of the British troops in Ava, under Sir Archibald Campbell, more than double that proportion.

During the first year's campaign in Ava, according to Col. Tulloch, three and a half per cent. of the British soldiers were killed in action, and forty-five per cent. perished by disease; whereas, of the Peninsular army, under the Duke of Wellington, during its forty-one months of active warfare, four per cent. were killed in action, and twelve per cent. perished by disease; consequently every British officer and soldier serving in Ava, during the first two months alone, incurred as much risk of life as in three Peninsular campaigns. The loss in the second year's campaign in Ava was about half of what occurred in the first, making a total in the two campaigns of seventy-two and three-quarters per cent, by far the most disastrous result of which we have any record.

It was at the Native Hospital, Calcutta, on the 8th of March, 1832, that Mr. Martin originated and performed his now universally adopted operation for the radical cure of Hydrocele, by a *retained* injection of diluted tincture of iodine. This operation is now adopted by every surgeon, not only throughout our Eastern dominions, where the disease is remarkably prevalent, but throughout Europe and America.

We now enter especially on the proudest phase of Mr. Martin's professional career. Thoughts which had long lain ripening in his mind were now to be matured into action. In the year 1830, Mr. Martin had presented a detailed Report, by order of the Government of India, on Native Medical Education. In this report, Mr. Martin stated, on his experience in the army, the evils of the old system, and the benefits resulting from recent improvements in the education of the subordinate medical establishment.

In March of the year 1835. Mr. Martin submitted to the then Governor-General of India, his friend Sir Charles Metcalfe, a systematic and detailed plan to require from all medical officers, civil and military, in the three great Presidencies of India, and the dependencies to the eastward, reports on the medical topography and statistics of the provinces, districts, cities, cantonments, and other stations; with the nature and climate of which they might happen in the course of service to be best acquainted, or in which they might at the time be serving. Sir Charles Metcalfe approved the plan, but in deference to official forms, he referred it to the Medical Board of Bengal. This body threw cold water upon it, but the distinguished man who a few years afterwards, at the probable risk to himself of £45,000, removed the Europeon soldiers from the plains to the mountains of Jamaica, gave effect to Mr. Martin's plan in its entirety. This is the greatest sanitary measure which has been ever imagined, far less executed, embracing an area larger than the whole of Europe, and including a population of more than a hundred millions. In the same year, in the month following, Mr. Martin submitted to the governors of the Native Hospital, and through them to the government of Bengal, a comprehensive plan, embracing the prevention, as well as cure, of disease in Calcutta and its surrounding districts. The result of this report was the establishment of a Commission of Inquiry in the Medical Topography and Health History of Calcutta, of which Mr. Martin was a leading member for two years. The result has been seen in a series of legislative enactments by the Supreme Council of India, which, it is hoped, will render, in the course of a few years, that great capital, at one time second only to Batavia for insalubrity, comparatively healthy to Europeans. The second object comprehended in Mr. Martin's Report, was the establishment of a GREAT HOSPITAL, to be termed the Fever Hospital, for the treatment of the acute diseases of the natives. This great institution, the foundation of which was laid in 1848, is now approaching its completion. The estimate, according to Sir John Grant, was laid at a little above a lac of rupees, (£10,000,) which sum was already collected as early as April, 1847. The progress of this much-needed institution, in a city in which Mr. Martin received so much patronage and kindness, is most gratifying to his feelings. It is now attached as a school of practical instruction to the Calcutta Medical College. These measures relating to Calcutta received the strenuous support of the Governor-General, Lord Auckland.

Mr. Martin presented, in 1837, to the Medical Board of Bengal, a detailed official report on the medical topography, and on the diseases, endemic and epidemic, of Calcutta and of the surrounding districts. This report was printed by order of the Government, and 500 copies of it were distributed for the use of the medical officers of the Bengal army. Amongst the various important subjects detailed in this report, having respect to the sanitary improvement of Calcutta and the country around it, suggestions were offered for the removal of the European troops throughout India from the plains to the mountain ranges. This was set forth as an object of the first national importance, both as regarding the efficiency of the European army, and as constituting a vast saving in life and money, both of which have been and are still sacrificed through the occupation of bad situations, bad barracks, and worse hospitals.

In January, 1840, Mr. M. took his final leave of India.

The following extract from the General Order will show at a glance the benefits which accrue to Indian medical officers through Mr. Martin's exertions. All beyond the first figure is really attributable to him :—

After 20 years' service, 3 years' furlough included, as at present, ...				£191 a year.
After 18 years' service,	do	do	...	300 "
" 32 do	do	do	...	365 "
" 35 do	do	do	...	500 "
" 38 do	do	do	...	700 "

1841.—This year was published, in London, jointly with the late Dr. James Johnson, the sixth edition of the work on "The Influence of Tropical Climates on European Constitutions,"—a work which has justly been termed a cyclopædia of tropical medicine. Mr. Martin contributed, among others, the articles on Remittent Fever, Acute and Chronic Hepatitis, Dysentery, Cholera, Splenic Cachexia; with elaborate essays on the Medical Topography, the Prevention of Disease amongst European Soldiers, and on the Selection of Localities for Troops. Dr. Johnson introduced Mr. Martin to the professional public in the following terms, which were not more handsome than just :—"The reader will perceive that in this edition I have been joined and greatly assisted by a gentleman who has had long and ample experience in diseases of the East, where he rose to professional honours and distinctions, and from whence he has now returned in the prime of life, in the maturity of judgment, and with a vast fund of scientific and practical information." In November of this year, Mr. Martin visited Edinburgh, when he took the earliest opportunity of paying his respects to his former teacher, Sir Charles Bell, who received him with the most marked kindness. Sir Charles had been a guest in the house of Mr. Martin's father, when travelling in the Isle of Skye with Mr. Jameson, the eminent mineralogist. Both John and Charles Bell were imbued with the spirit of a military surgeon. The love of discipline was carried to a high pitch by Sir Charles, as a lecturer in the School of Windmill-street. He used to say, that to allow students to applaud their lecturers, was, by implication, to permit them to censure; and he always repressed the smallest appearance of the former.

1845. This year Mr. Martin was elected F.R.S., on the recommendation of several of the most distinguished Fellows of the Society in medical and general science.

In 1848, Mr. Martin was appointed by her Majesty's Government first member of a commission to report on the capabilities of the metropolitan workhouses for the reception and treatment of cholera cases, the advent of the cholera epidemic being at that time expected from month to month. The Report of this commission was printed by the order of her Majesty.

Mr. Martin's family is one of the largest; eight sons forming the major portion of it; but it has never occurred to the subject of our memoir to bring up any of his sons to his own profession. Amongst other reasons for this resolution are the following :—

1. Because the medical is confessedly the most difficult of all professions, and it is not therefore for the happiness of a youth to be placed in such a profession.

2. Because the amount of labour (not to speak of higher qualities) that can lead to a position of ordinary respectability in so difficult a profession as that of medicine, would lead a man to an eminent station in any other walk of life.

3. Because, that as the medical profession is now constituted, and as it is regarded in society, honorary distinctions are out of the question for the generality of the most distinguished physicians and surgeons. To money, some may attain, but the great majority do not attain even to that.

The readers of the preceding narrative have been gratified by the biography of a gentleman whose career has been no common one. By extensive labours, having for their object the welfare of populous nations and vast territories—labours which have had the good fortune of being crowned with contemporary success, Mr. Martin won an Asian reputation while he was still young. In a clime where all the operations of Nature, of commerce, of legislation, of peace, and of war, are conducted on the grandest scale; in the scenes of the triumphs of Clive, Hastings, and Wellesley; and amidst a people used to the spectacle of oriental success, he attracted to himself an attention and influence never exceeded by any member of the profession of medicine. His talents and exertions have proved eminently serviceable to the public of Hindostan, to his brethren of the medical department of India, to the physicians and surgeons of our naval and military services throughout all time, and to him is attributable one of the earliest impulses to the great sanitary movement now making itself beneficently felt in every nook and corner of the Empire. Coming amongst us at an age which is generally considered fatal to success in London practice, he has, nevertheless, taken a high standing among the profession of this great metropolis. In him, too, there are met that rare combination of qualities, which equally fits the possessor for the duties of public office or the amenities of private circles. Of Mr. Martin it may be said, that in whatever conjuncture of affairs he may be placed, either in military or civil life, the science and dignity of his profession will be alike maintained.

The Late Martyr to Science.—We lately reported the death of Dr. Ellenberger, a French Physician at Prague, in consequence of an experiment he made on himself with poison, against the effects of which he contended he had discovered an infallible antidote. M. Menière related, in the *Gazette Médicale*, some of the experiments of which he was a witness while travelling in Germany with M. Orfila. During their visit to the Museum of Natural History at Prague, they were introduced to Dr. Ellenberger, who was happy at having an opportunity of showing them his experiments with the antidotes against vegetable poisons, and particularly strychnine and morphine. After relating the various trials he had made on himself, he proposed to perform an immediate experiment. He sent to an apothecary for fifteen decigrammes (thirty grains) of acetate of morphine, which, after it had been examined by M. Orfila and declared to be pure, he put on his tongue and swallowed, to the great alarm of all present. One minute after, he swallowed about the same quantity of a white powder, and the poison produced no effect whatever on him. He related that he had made the same experiments on animals and on plants, and invariably with the same result. He appears to have done the same with strychnine, and always with impunity, until the last time, when he unfortunately lost his life.

Reviews and Notices of Books.

The Diseases of the Bladder and the Prostate Gland. By William Coulson, Surgeon to St. Mary's Hospital, &c. Fourth Edition, revised and enlarged, 8vo.

Ten years have elapsed since the publication of the third edition of this work. Since that time science, which has revolutionized so many of the departments of human speculation and action, has not been idle in the domains of medicine and surgery. Chemistry, which has analyzed the secretions of the animal kingdom for the discovery of treasures applicable to the increase of food for the support of human life, has laboured, with scarcely less success, to discover the causes and remedies of human pain. Since then the microscope has been elevated from the rank of a toy used to excite our wonder, to that of a beneficent instrument enabling us to detect the composition of fluids that exert a powerful influence on the animal economy. Chemistry, in short, is day by day unfolding to us the laws of action of the component parts of the secretions, and the microscope instructs us in the forms of the elementary portions.

It is right, therefore, that in the revision or new-modelling of a medical work, however complete it may have been at the time of its first appearance, care should be taken to show what modifications these two mighty agents have made in the branch of science to which it refers.

This Mr. Coulson has done in the fourth edition of his useful treatise. It is a detailed statement of the nature and treatment of a most important class of diseases, according to the latest views adopted by the most eminent practitioners of the day. It is enriched also with remarks founded upon the very large experience the author has acquired during his long practice. It thus forms one of a genus of works to which we think that the leisure of successful practitioners would be more usefully devoted than in the formation of lofty generalizations or disquisitions upon large groups of diseases, of a few only of which is it possible that they have any extensive knowledge. In the present day good monographs, written by men of scientific habits, and enjoying the opportunity of extensive practice, are the most valuable contributions that can be made to medical science. They form the only basis upon which any comprehensive philosophy can ever be founded.

The first chapter of the work is devoted to Normal and Abnormal States of the Urine, and contains a mass of information, original and selected, relative to the constituents of the secretion in a healthy and unhealthy state. The results of careful chemical analyses are given, and engravings inserted of the appearance of the urine in various states when examined by the microscope.

The investigations concerning the presence and the effects of oxalate of lime in the urine, may be noticed as affording proof of the care with which the results of chemical and microscopical observations have been given. The observations as to the value of the knowledge of the presence of this salt in the urine are very important.

> "To determine whether oxalate of lime be present in the urine, that should be chosen which has been passed a few hours after a full meal; a portion of it is to be put in a large test-tube, and allowed to stand for some hours. The upper six-sevenths are to be decanted, then a portion of the remainder is poured into a watch-glass, and gently warmed over a lamp: the fluid is to be allowed to repose for a minute or two, and then the chief part of it is to be removed with a pipette, and replaced by distilled water. A white powder, often of a glistening appearance, will now become visible, and this, under a microscope, exhibits crystals of oxalate of lime in beautifully formed transparent octahedra with sharply defined edges and angles, and other forms usually termed dumb-bells."—p. 74.

We have no hesitation in recommending the whole chapter on the Urine, as well as that on the "Chemistry of Urinary Concretions," to the careful attention of the practitioner.

The chapter on Irritability of the Bladder, Paralysis, acute Inflammation of the Mucous Membrane, Chronic Inflammation of the Muscular Coat, Inflammation of the Peritonæal Coat, and Malignant Diseases, have been in this edition entirely re-modelled, and contain the latest views on these various forms of disease. The best mode of treatment is indicated, and cases selected illustrating the principles laid down. The chapter on Hernia of the Bladder is entirely new.

In treating of Malignant Diseases of the Bladder, Mr. Coulson goes very fully into the rather obscure subject of cancer in the organ.

Abnormities of the Bladder, not treated of at all in the previous editions, receive a large share of attention. The author observes that

> "Abnormities of the Bladder may be either congenital or acquired. The former are always dependent upon some irregularities in the law of fœtal development, by which the cavity of the bladder is generally left incomplete, the opening being either in front through the abdominal walls, or behind, communicating with the rectum. The former is the more common, and the only congenital deficiency with which I am acquainted."—p. 217.

With respect to this abnormity, many of the best authorities now concur in the opinion that it arises in the following manner: The germs of the embryo arrange themselves in three layers, the serous, the vascular, and the mucous, corresponding severally with the posterior, intermediate, and anterior portions of the body in process of formation. The serous layer reflected backwards unites posteriorly to form a canal, which becomes the vertebral column and the cranium; it contains corpuscles, which unite to form the brain and spinal cord. The mucous layer curving round forms a large anterior canal, also filled with corpuscles. It is subsequently divided into those compartments along the front of the body, which we recognise as the mouth, the chest, and the abdomen. If now the formation of these great canals and viscera is arrested but for a time, further growth but imperfectly remedies the deficiency, and an abnormal condition is established. If the mucous layer is thus arrested in process of development, the lower part of the abdomen may remain open; in this case the front wall of the bladder is incomplete, and the urine escapes through the aperture.

A remarkable case illustrating the nature of this class of abnormity is extracted from a description of it given by Mr. Thomas Wakley to the London Medical Society:—

> "The Society," observed Mr. Wakley, "will remark that no umbilicus exists; the abdominal muscles are separated at the lower part, through which appears the posterior wall of the bladder, with its muscular and mucous coats, very painful to the touch, and readily bleeding. The orifices of the ureters can be distinctly seen; the urine is constantly dribbling from them, and flows over the rudimentary penis, producing very severe excoriation of the part. The rudimentary sexual organ is about one inch in length, and closely applied to the inferior part of the tumour, which, when depressed, displays complete epispadias, the urethra being merely a groove. The opening of the seminal ducts can be seen at the root of this rudimentary penis, and upon each side is a prominence corresponding with the partially descended testes. The parts are partially covered with hair, and every symptom of manhood exists, to the discomfort of the patient. In this case the pubic bones were in apposition and firmly united. Mr. Wakley proposed to perform an operation for the purpose of protecting the painful and highly vascular urinary tumour, by transplanting a covering from the neighbouring integuments of the abdomen."—p. 225.

This chapter contains much practical information, and is well worthy the attentive study of the practitioner.

The whole subject of the Causes and Symptoms of Stone, and the different modes of operation, is treated with great skill and care. Without professing to give a complete account of the causes of calculous complaints, the author lays down, as the principle of the formation of calculus, the saturation of the urine with that substance of which the future calculus is formed. Even, however, when saturation has taken place and a deposit has been the result, it does not always follow that this should appear in the form of a calculus. It may remain as gravel, probably for the want of some agglutinating matter by which the minute particles are made to coalesce. For the formation of large homogeneous calculi, it is necessary that the saturation of the urine should have continued during a long period of time. Calculi with alternating layers may be accounted for on the supposition that at intervals the saturating substance is changed.

The doctrine of the metamorphosis of living tissue by oxygen, suggests some explanations of the formation of calculi. By the agency of oxygen the component textures of the living body are changed into urea and uric acid. When the supply of oxygen is large, that is, when respiration is active, the proportion of urea is great, that of uric acid small. That is to say, that the product most sparingly soluble is less in quantity than that which is easily soluble: The conclusion from this is obvious, and is supported by the remarkable fact, agreed upon by all authorities, that imperfect respiration is one of the most striking conditions concerned in the production of calculi.

Children are more subject to stone than grown-up people. In the Norwich Hospital, during a period of forty-four years, out of 478 operations, 227 were on children under the age of fourteen. Dr. Prout, who shows that urinary concretions are far more frequent in persons under twenty than in those above that age, gives the proportion of those afflicted with stone under ten years of age, to those similarly afflicted between ten and twenty, as 500 to 192. The popular belief that waters impregnated with calcareous matter are causes of stone, is shown to be erroneous. The inhabitants of Paris are very subject to the disease; now if this were attributable to the water of the Seine, we should naturally expect to find carbonate of lime (with which this water abounds) a component part of the calculi. The fact is, however, that this product is very seldom discoverable. The Caroline hot baths incrust with a strong matter, yet these baths are highly recommended to patients suffering from stone. For a full account, however, of what is at present known as to the ætiology of the disorder, we must refer to the work itself.

In operating for the stone, he introduces the staff before the patient is tied, in opposition to the practice of some surgeons, alleging, as a reason, that the introduction of any instrument along the urethra, into the bladder, is by no means so easy when the thighs are flexed upon the abdomen as when they are in their usual position.

Mr. Coulson's experience in operating for the stone is well known. The details connected with this operation are given with great minuteness and accuracy. The practitioner will find here a complete digest of all the most valuable information concerning lithotomy.

Lithotrity occupies a considerable share of the author's attention, and the comparison between the results of the two modes of operation is given with impartiality.

We congratulate the author on having given us a work which may be very fairly said to be a complete account of the existing state of knowledge of these important diseases. He has neglected no part of his subject. The chemical and surgical details are equally carefully elaborated. We have no hesitation in saying that he has fulfilled the endeavour which he states that he wished to realize, that of giving useful lessons to the student in surgery, and offering a faithful guide and help to the practitioner.

The Pestilence in England; an Historical Sketch. By J. N. Radcliffe, Curator of the Leeds School of Medicine. Pamphlet, pp. 54. London: Hamilton, Adams, and Co.

This "Sketch" was read before the Hey Society of Leeds, and was published by the author at the request of the members of that body. It is written in a careful manner, and embraces a great number of facts bearing upon the important subject of Epidemics. It will tend much to enlighten the general reader on a subject but little known, and is therefore deserving of a large circulation.

On Fatty Degeneration of the Placenta. By ROBERT BARNES, M.D., London. From vol. xxxiv. of the "Medico-Chirurgical Transactions."

MICROSCOPICAL investigation has shed a strong light upon the pathology of the internal organs, and in no respect has this been more strikingly manifested than in the elucidation of that extraordinary species of decay which is marked by the deposit of fatty matter in the normal structures of the body. In succession the progress and effects of this change have been demonstrated in various organs. Its relation to living pathology has been displayed, and its history is now so far complete, that it has been traced in almost every tissue. Dr. George Johnson added a great fact to the pathology of albuminuria when he first demonstrated the connexion between this system and granular degeneration of the kidney. Mr. Bowman and Dr. Handfield Jones have shown that a similar change is a frequent occurrence in the liver. Mr. Paget, again, has determined that apoplexy is often intimately associated with fatty degeneration of the cerebral capillaries. Dr Quain and others have established the importance of this affection when invading the muscular fibres of the heart, explaining, as it does, many cases of sudden death. That remarkable appearance of the eye called the *arcus senilis* has been shown by Mr. Canton to be a similar change of the cornea; and the observation acquires a special interest, as the arcus senilis has been further shown to be an outward manifestation of similar changes in internal organs.

Mr. Rainey has proved that the normal process of restoration of the uterus, after parturition, to its ordinary state, is effected by the conversion of the now useless tissue into oily or fatty matter.

The monograph before us supplies another chapter in the history of this important pathological condition. The cases which form the subject of this paper have a more than simple pathological interest; they prove how important granular degeneration of the vascular structure of the placenta is in relation to obstetric practice. The cases specially detailed give examples of detachment of the placenta and flooding, death of the fœtus, and premature labour, following upon fatty conversion of the placenta.

Dr. Barnes has fairly established that this change is the efficient cause of many of the accidents which interrupt or bring to an untimely termination the process of gestation, of the nature of which we have been hitherto ignorant.

In investigating the microscopical characters of the changes wrought in the placental tissues, Dr. Barnes sought the assistance of Dr. Hassall, by whom they are minutely described, and depicted with uncommon beauty in the illustrations which accompany the paper.

Dr. Barnes describes the general appearance exhibited by the deceased placenta as having "the uterine surface studded with fatty masses, varying in size from that of a bean to one mass which was as large as a pigeon's egg." We quote this description, as it may serve to arrest the attention of other practitioners to a disease which has hitherto remained undiscovered. The disease may no doubt exist in other forms, and Dr. Barnes has already in this paper described a case of granular conversion of the placenta, which no doubt took place after the death of the fœtus, and enabled the uterus to retain the dead ovum, without any vestige of putrefaction, for many months.

We trust Dr. Barnes will continue the investigation, as we feel confident that it will prove fertile in results. As it now stands, we regard this discovery as the most original and important contribution to pathology and obstetric practice which has for a long time past been made to medical science.

Homœopathy Unveiled, or Observations on Hahnemann, his Doctrines and Treatment of Disease. By W. PERRIN BRODRIBB, Surgeon, &c. Second edition. Pamphlet, pp. 45. London: S. Highley.

A SENSIBLE, well written, and convincing *exposé* of the Hahnemannic quackery. Mr. Brodribb has stated the matter with great fairness, and his pamphlet should be placed in the hands of all those persons who have any doubts upon the nature of the practice of globulists. The following remarks are all we can find room for, but they are to the point, and will be felt in certain quarters, unless, indeed, the persons to whom they allude are lost to every sense of honour and shame.

> "But whatever may be thought of the system of homœopathy itself, no difficulty can be felt in forming an estimate of a certain class of practitioners. Every physician and surgeon may justly entertain so strong a feeling of the dignity of the medical profession, as to wish that no one included within its pale may ever tarnish its lustre, or, by disingenuous conduct, diminish its claims to public respect. What then can be thought of those of its members who, to the practice of an honourable profession, unite that of a degrading quackery, and who, by adopting both methods of treatment, proclaim their willingness to surrender their own judgment and conscientious opinion to the caprice and fancies of any who may consult them? On the same grounds is to be equally condemned the conduct of those persons who seek to obtain the diploma of our universities or colleges, intending afterwards to practise the system of homœopathy. The diploma is granted, on certain well understood terms, to those who have acquired a competent amount of knowledge, and who also profess those principles of practice which our colleges believe to be sound and correct. Yet these principles are immediately afterwards denied and renounced, and there is substituted for them a system which those very colleges have declared to be a fallacy and an imposture. Is not such dissimulation in each case incompatible with that sincerity and honesty of purpose which constitute an essential ingredient in the medical character?
>
> "The late Mr. Abernethy was accustomed to say to

his patients, 'I cannot undertake to give you good advice, but I will promise to give you honest advice; I will tell you what I would myself do in your situation.' This was following the golden rule of doing as we would be done by, and that man who most sedulously strives to qualify himself to advise others, and likewise best obeys this precept, most nearly approaches the beau ideal of the medical character.

"The Word of Truth assures us that 'no man can serve two masters,' and no man without a compromise of his character can adopt both kinds of practice. The two are not consistent with, but contrary to each other, and for any one to believe in both is a plain impossibility. No casuistry, therefore, can justify or explain away such double-dealing; and all moralists will agree that 'if a man represents as true what he believes to be untrue, or even doubtful, he tells a falsehood, and that if he does it from interested motives, he is a dishonest man.'"

How much is conveyed in the motto chosen by Mr. Brodribb from the writings of Robert Hall:—

"They drew aside the veil, and where they were taught to expect a mystery they discovered a fraud."

A Practical Treatise on Chemical Analysis, including Tables of Calculation. By H. Rose. Translated from the Fourth German Edition, by A. Normandy. 2 vols., 8vo. W. Tegg and Co., London.

It would be a work of supererogation to enlarge on the merits of Rose's celebrated work on "Chemical Analysis," of which the volumes before us contain an elaborate and careful translation, together with the notes of Professor Peligot, who translated the original into the French language. Mr. Normandy has executed his task with care. The first volume contains an exposition of the rules and processes which should be adopted in qualitative analysis. The author has in this volume given the means of distinguishing those substances only which are of more frequent occurrence; partly because they are more interesting than those which are rare, but partly also, and more especially, because the descriptions of the processes which must be resorted to in such cases would have been a great deal too intricate and obscure had he supposed, in the compound to be examined, the simultaneous presence of all the substances which might possibly be contained in it. The second volume indicates the method to be followed in quantitative analysis; and each simple body, with the exception of oxygen, is the subject of a separate chapter. The work is valuable, and will doubtless have an extensive circulation. The way in which the work is "got up" reflects credit on the enterprising publishers.

Class-Book of Botany; being an Introduction to the Study of the Vegetable Kingdom. By J. H. Balfour, M.D., &c. With upwards of One Thousand Illustrations. Edinburgh: A. and C. Black. London: Longman and Co. 8vo, pp. 357.

One of the most complete and elegant class-works on botany which has been published. It contains all that a student may require, both in ~~description and in illustration.~~

PRESENT POSITION OF VACCINATION.

Before the protective power of vaccine inoculation can be correctly appreciated, even with the help of most ample statistical data, there is one important question which requires in the first instance to be most diligently sifted—viz., by what signs can we determine that true vaccine inoculation has been effected in a given case? Until the mind of the profession has been brought to unanimity on this point, every atom of historical evidence which may be adduced will be inconclusive and unsatisfactory. We hear and read of innumerable cases of alleged small-pox after vaccination. What is vaccination? and what is meant when a child is said to have been vaccinated? It is worthy of remark that neither the verb *vaccinate*, nor the noun *vaccination*, is to be found in the writings of Dr. Jenner.

Our readers may be a little startled when we affirm, after a diligent re-perusal of Jenner's writings, that what he designated "vaccine inoculation" is not identical in meaning with what is now called vaccination; nor, when he described a child as having been "inoculated with the variolæ vaccinæ, or cow-pox," did he intend to signify what is now meant when we say a child has been vaccinated. In unfolding this very important discrepancy, we shall confine ourselves to the use of the verb, as a more correct mode of expression than the use of the noun. To *vaccinate*, then, in modern language, simply means to insert beneath the cuticle a portion of lymph taken from a vaccine vesicle. Whether the operation take the proper effect—*i. e.*, whether it communicates the true vaccine disease, or whether it take an improper effect—*i. e.*, whether it gives rise to a spurious vesicle, or whether it take no effect at all, proving an absolute failure; in either case a child is said to have been vaccinated. But it is only in the first of these three cases that it has truly, in the language of Jenner, been "inoculated with the cow-pox." Now, the question before us is not whether a patient may take the small-pox after having been vaccinated; Jenner never once questioned the liability of a vaccinated person to the small-pox; what he said was, that after being "*inoculated* with the cow-pox," he was just as secure for life as after being inoculated with the small-pox. Unless inoculation in the first case produced the genuine cow-pox, it was considered that the attempt at inoculation had failed; the thing was not accomplished—the child was not inoculated with the cow-pox. If the child had been what we call vaccinated fifty times, unless he proved to have been actually inoculated with the disease, the case was placed in the category of unprotected cases; whereas, in the language of the Registrar-General, and even, if we mistake not, in the registry of the Small-pox Hospital, the use of the significant term "*unprotected*" is restricted to the cases in which no attempt whatever has been made to introduce vaccine lymph into the system! And thus, by implication, a child which has been vaccinated, efficaciously or not, is allowed to swell the list of the cases of small-pox after vaccination. And thus the public is deluded into the notion that, after all, **Jenner**'s views were erroneous, his expectations fallacious, and his vaunted prophylactic by no means to be depended upon, except, perhaps, for a limited number of years. It would be a great happiness to us to be able to acquit the profession entirely of the charge of aiding and abetting the propagation and dissemination of these most mischievous and fatal blunders. It is not too late, however, to retrace our ground. But we must submit to the humiliation of once more sitting at the feet of **Jenner**, and inquiring what he meant by vaccine inoculation, and what are the precise characteristics of that disease which he pronounced a protection for life against the contagion of the variolous poison.

And, in the first place, we must remind those of our readers who have not recently investigated the subject, that the teat of the cow is subject to two different kinds of eruption, one of which affords protection from small-pox, and the other affords no protection. So that a child may be vaccinated from the cow without being protected in the slightest degree from a future attack of small-pox. **Jenner** describes these "pustulous sores" as sometimes communicable from the cow to the milker's hands, but as "incapable of producing any specific effects on the human constitution;" and he concludes with the prophetic warning that it is of great consequence to point out the disease and its diagnosis, "lest the want of discrimination should occasion an idea of security from the infection of small-pox, which *might prove delusive*."*

But the genuine cow-pox matter frequently fails in producing in the human subject the genuine vaccine disease. **Jenner** was well aware of this circumstance, and took great pains to point it out. The observant Dr. **Willan** also, as well as Dr. **Bateman**, attached great importance to the diagnostic signs whereby the true vesicle might be distinguished from the various kinds of spurious and non-protective pustules or vesicles. And it is a remarkable fact, that since these signs, or some of them, have been ignored by the present generation of vaccinators, the small-pox has committed sad havoc among the vaccinated population, who were, to a man, effectually protected *so long as the opinions of* **Jenner** *were implicitly adopted and rigidly acted upon.* We strongly recommend our readers to study these signs. They will be found most clearly laid down in **Bateman**'s "Practical Synopsis of Cutaneous Diseases," (p. 216–223, 6th edition.) At present, there appears to be no security whatever for the production of the genuine cow-pox by vaccination, beyond the diversified opinions and practice of individual vaccinators, very few of whom appear to agree with each other as to the necessary tests, not to mention that many vaccinators make no pretensions to medical science. And yet we have the effrontery and presumption to charge our failures upon **Jenner**, and to assume to ourselves the credit of exposing the fallacy of **Jenner**'s hypothesis, "tested by the experience of half a century." We may rest assured **Jenner** will yet have justice done to him. If the government will do its duty, and the profession is faithful to its trust, the small-pox may yet again disappear before the almost universal practice of genuine vaccine inoculation; and the name of **Jenner** will one day be dearer than ever to science and to humanity, though even the **Gregorys** shall *long have been forgotten.*

DEATH FROM HÆMORRHAGE CONSEQUENT UPON LANCING THE GUMS.

To the Editor of The Lancet.

Sir,—Your correspondent, Dr. Whitworth, who thinks his case of fatal hæmorrhage from lancing the gums to be unique,* will find a similar one communicated by Mr. Taynton to the late *Medical Gazette*, as far back as January, 1836, besides at least two others in the second volume of The Lancet for 1846.

Mr. Taynton,—after stating that his little patient, six months old, had the gums lanced on Sunday, and in spite of various styptics, including, as in Dr. Whitworth's case, the actual cautery, died from the loss of blood on the Tuesday following,—proceeds as follows:

"Now, suppose such a case had occurred in a family of high rank, and the child had died, what a sensation would it not have caused! And how highly injurious might it not have proved to the surgeon's reputation! A similar case might happen again. Surely, then, it is important to know what mode of treatment would be likely to arrest the hæmorrhage; and I hope that some of your able correspondents will favour us with their opinion on the subject."

As I am not aware that this appeal to the opinion of medical men was ever responded to, though the conjecture that cases of the same distressing kind might happen again has been repeatedly realized, I beg to offer you my own ideas on the subject:—

The first point to consider is, how the occurrence may be prevented. If, as in Mr. Taynton's case, the hæmorrhagic diathesis exists, no one knowing this would think of scarification. It may be advisable, therefore, in every instance where that operation is indicated, and the child is under a twelvemonth, to inquire whether that peculiar constitution exists in the family. Surely, it is better to put the question a thousand times in vain than lose the chance of avoiding that most painful of all a medical man's trials—the sight of a helpless patient dying through the very means employed for his relief.

Another most important rule is to make no long incision, but if several teeth are advancing on the same line of gum, to let the scarifications be short and detached. In one of the cases I have met with in The Lancet, the gum-fleam had slipped from over the crown of the tooth backwards, and had separated the gum to some extent from the inner surface of the jaw-bone. This, of course, should be carefully avoided; and it will more easily be so if no long incision is attempted.

Though never so unfortunate as to meet with troublesome bleeding from any gums I myself have lanced, the symptom has occasionally come under my treatment, and I have as yet nearly always succeeded in getting it under by pressure with the finger upon a suitable compress, saturated with a strong solution of nitrate of silver. In one case only, that of Captain V——, do I remember employing the caustic in substance. That gallant officer, on the 4th of November, 1846, had been to a dentist, who had made a horizontal incision over the roots of the left upper bicuspids, which had bled the whole two miles of his walk home, and by the time I arrived had produced considerable pallor and faintness, and filled the mouth with coagulum. After applying the compress for a quarter of an hour, with partial effect, I saw the jet of a small artery, and after touching it with a point of lunar caustic, had no further trouble. With infants, however, on account of the delicacy of their mucous membrane, and especially with those whom I suspected of the hæmorrhagic diathesis, I would carefully avoid the solid nitrate of silver, for fear of secondary bleeding on the separation of the slough.

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* Jenner's "Inquiry into the Causes and Effects of the Variolæ Vaccinæ," p. 7, (1798.)

* *Vide* June Lancet, p. 488.

Independently of local measures, it would seem prudent to give from time to time a few drops of tincture of ergot or other internal styptic (perhaps the tincture of matico,) so long as hæmorrhage continued; and, last in mentioning, though first to be remembered, one ought always, on learning that a child's gums were bleeding unusually after scarification, to *attend immediately*, which appears not to have been done in all the cases reported.

I have the honor to be, Sir,
Your most obedient servant,
F. A. B. Bonney.

ON ARTIFICIAL DILATATION OF THE OS UTERI.

To the Editor of The Lancet.

Sir,—Your useful periodical presents a recently published communication on Artificial Dilatation of the Os Uteri,* which has excited strong animadversions on the part of some friends of mine who have had a long acquaintance with *practical* midwifery; and the opinion has been freely expressed, that the paper in question is very likely to be eagerly read, and the practice as eagerly adopted, by those inexperienced "tyros" to whose memories it is ever more especially commendable that "a meddlesome midwifery is bad."

Suffer me to offer a few words on the subject generally, premising that my remarks are founded on the observation of living action during an active period of five-and-twenty years, rather than upon the dicta of books and authorities.

In the first place, then, as to natural labour somewhat protracted as to its duration, it will not commonly be found that the delay is the result of physical impediment, such impediment being solely unnatural rigidity of the neck and mouth of the uterus. Why should it be expected that any unnatural rigidity should affect the muscular structure of that part of the uterus exclusively? The truth is, that in such cases the whole structure of the organ is physiologically in the same state, the fact being that the pain is often seemingly disproportionate to the apparent feeble action of the uterus, and referable to other causes in addition to contraction, even of an irregular kind. Acquaintance with a few hundred cases in practice will convince any person, that if a soft, lax, and dilatable state of the os uteri is producible by the tearing, wedge-like action or rotatory motion of the fingers on the anterior lip of the os uteri, such dilatation would have occurred quite as readily, and much more advantageously, without any interference at all. *The fœtal head is the natural dilator of the os uteri;* and what body so appropriate; its form, its size, enabling it so accurately to adjust itself to the inner surface of the cervix? Introduce the fingers, and then the whole natural economy is disarranged, the pressure is dragging, partial, local, and grossly unnatural, and its only effect (as far as I have seen) is to induce renewed, useless, irregular pains and spasm of the muscular fibre in contact with the meddlesome fingers,—to say nothing of the dry, irritable, swollen, and hot state of the vagina and vulvæ induced by this *detestable* and unscientific practice—a custom which surely originated, and has been highly recommended, by some officious and ignorant aged females of the past generation of "Goody Groaners." The results remain to the present day. The surgical attendant in many districts, and especially in country practice, is expected to sit with his patient during the long midnight hours of the first stage of labour. At every trivial pain the gossips encourage the sufferer to call on the surgeon to "do something;" and he is thought careless, if he neglect to do or seem to do something. The bad practice of a past age has sanctioned and rendered necessary, as far as female notions of necessity go, a frequent officiousness; and your correspondent, not in the spirit of a mere *placebo*, would give the surgeon "something to do" in reality, that, to my mind, were best left undone. I cannot find words sufficiently expressive of the impropriety of needlessly interfering with a structure so exquisitely irritable and delicate as the gradually expanding cervix uteri; for this, in many cases of merely protracted labour, is no overcharged description of the state of parts, concerning which no previous experience can demonstrate how much manual interference they will bear with impunity. It is true, that the unnecessary introduction of the hand into the uterus, either professedly for the purpose of dilatation, or for the almost general practice of the hasty extraction of the placenta, is borne, in the majority of instances, as calmly, in the after history, as if the uterus were not a vital organ; but it is also true, that many women on whom these execrable habits are practised, perish afterwards from very unaccountable and undefinable irritative fever. For the state unscientifically denominated "rigidity of the os uteri" instead of attempting mechanical and awkward dilatation with the fingers, (from below upwards, instead of as with the head from above downwards,) I have always thought, if any thing were done—which female impatience ought never to precipitate—*the loss of a little blood*, an opiate, and an interval of cessation from useless and wearying effort, far the best practice. To tease the uterus with the fingers, at a moment when a female is seemingly, though not really exhausted, is worse than unscientific—it is the act of a cruel, ignorant old woman. It may be done so as to leave its impression, not on the parts certainly, but upon the minds of ignorant women, that such exertions have been highly scientific and indispensable.

As to the idea suggested by your correspondent of "slipping the os uteri over the head," it is such an absurd delusion, that a smile is all it is worth; a young practitioner may fancy he can accomplish it. If he could, what has he gained? The position of the head in the pelvis remains the same; and the ease with which he may suppose he is accomplishing this feat, arises from the certainty with which the head is descending, and obliterating the os uteri, without his permission.

In conclusion, if it were possible to effect dilatation of the os uteri with the fingers, little would be gained; and where it has been supposed labour has been expedited by the practice, the result would have been less officious, far more natural, far safer and better, and just as speedy, had the practitioner contented himself with following the advice of Dr. Blundell, and thrust his hands, not into the patient's uterus, but into his breeches' pocket.

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* Lancet, June, p. 445

I remain, Sir, yours very respectfully,
JOSEPH ASHBURY SMITH, M.R.C.S.

Medical Facts, News, Items, &c.

ST. BARTHOLOMEW'S HOSPITAL.—Admitted, cured, and discharged during the last year, 5957 as in-patients, and 79,701 medical and surgical out-patients, including casualties, most of whom were poor, sick, and lame persons; and many of them being destitute of all relief, have been supplied with money, clothes, and other necessaries to enable them to return to their several habitations—amounting together to 85,656. Died, 444. Remaining under cure, in-patients, 523; out-patients, 2538. This being the most ancient hospital in the city and suburbs of London, and having escaped the great fire in the year 1666, the building by length of time became so ruinous, that in the year 1729 great part thereof was necessarily taken down. A subscription was then entered into for defraying the expenses of rebuilding the hospital, which was progressively effected. The funds for this purpose having been exhausted, and the buildings still being inadequate to the purposes of the Charity, it was found necessary to make a considerable addition thereto, and the governors have removed within the last few years valuable property on the north side of the principal entrance in Smithfield, and have erected on the site thereof a spacious surgery, which is open at all hours of the day and night for all persons requiring medicine or surgical assistance, with additional wards and a theatre for operations adjoining—whereby the fulfilment of the intentions of the benevolent fund has been more effectually promoted.

ST. THOMAS'S HOSPITAL.—There have been admitted, cured, and discharged during the last year, of sick, wounded, maimed, and diseased persons, 4362 in-patients, &c., 48,492 medical and surgical out-patients, including casualties, some of whom have been relieved with money and necessaries at their departure. Died, 236. Remaining under care, in-patients, 466; out-patients, 1485. So that there have been during the past year of poor miserable objects under the care of the said hospital, and destitute of other proper care, in all, 55,043. The governors, on the rebuilding of London-bridge and the formation of its near approaches, made, at a considerable cost, large purchases of ground and buildings, adjacent to the hospital.

CHOLERA AND FEVER AT THE SEAT OF WAR.—The troops in possession of the Great Pagoda, Rangoon, which was taken after a fearful slaughter, are suffering frightfully from fever and cholera, in consequence of the stench created by the heaps of dead bodies that were left by the enemy. Captain Hunt, 80th regiment, has fallen a victim to the cholera; and another officer was in a hopeless state at the time the despatches left, which stated that an awful mortality prevailed among the troops generally.

COD-LIVER OIL.—The *Columbo Observer* states that the physicians of India contend that the virtue for which cod-liver oil is so famous, is not confined to the oil extracted from cod-liver, but is equally shared by all fish yielding oil, including the common whale oil. The liver of the *seer* fish is also deemed by the medical gentlemen of India to possess great restorative qualities.

CHANGES EFFECTED IN MEDICAL EDUCATION IN FRANCE, BOTH AS REGARDS PROFESSORS AND PUPILS.—There have been of late promulgated in Paris a series of decrees bearing upon the medical profession which have worked a considerable and very [illegible] change in the former state of things. It is in the first instance to be noted, that the professors are no longer appointed by "concours," or public competition, but the chairs are now *given or withdrawn* at the pleasure of the President. This arbitrary course applies to the members of the superior council of public instruction, to inspectors-general, rectors of academies (a kind of branch universities in the provinces, the government recognising but one university which has its seat at Paris,) the professors of the [illegible] faculties, of the College of France (three professors of this college, Michelet, Quinet, and Miscievis have already been dismissed,) of the museum of natural history, and of the school of pharmacy. The superior council of public instruction has been also greatly modified, M. Orfila being, amongst others, dismissed; and M. Bérard, late Dean of the Faculty of Medicine, appointed Inspector-general of Medical Education. M. P. Dubois replaces M. Bérard as Dean.

Thus is the concours dead as far as professorships are concerned; hospital physicians and surgeons (excepting the professors of clinical medicine and surgery who belong to the faculty) are, however, still nominated after a protracted competition. How long this liberal course will be pursued, it is difficult to say. So much for the teachers; as to the pupils, a no less destructive decree has been put forth as regards the preliminary education. Hitherto, a young man before taking out his first inscription (or lecture) at the faculty, was obliged to produce his diploma of bachelor of letters, (pretty similar to our bachelor of arts,) and his first year was then devoted to the study of the natural and physical sciences, at the expiration of which time he was expected to pass an examination to obtain the degree of bachelor of science. Thus prepared, the young man fairly launched into medical studies, and it may be supposed that with a moderate share of intelligence, an examination every year, and a final one at the expiration of four, he would be likely to be worthy of his doctor's diploma. Even students in pharmacy could not commence their studies at the school of that name, except they produced a diploma of bachelor of letters. A late decree has upset all this; the study of letters is reserved for the faculty of letters and of law; the faculty of medicine and of sciences no longer require the polish of *humanities;* the degree of bachelor of science will henceforth be sufficient. The French, Latin, and Greek *grammar*, with a little logic, is all that is required of the new race of doctors, as far as philology, ancient and modern literature, are concerned. Thus will the licentiates of our Apothecaries' Hall be far better educated, in a literary point of view, than the M.D.'s of the French Faculty, (and of several others.)

Another decree has worked a complete change in the army medical department; here, however, a certain amount of favour and partiality has been shown to the profession, as the number of higher grades is increased, the lowest altogether done away with, and the pay of all materially augmented. There is to be one central school at Paris, whence the young men will be distributed into the military hospitals and regiments, after a strict examination, and obtaining the degree of doctor of medicine in a faculty. Formerly, the medical officers of the French army, with a few exceptions, were called *surgeons;* they are now called *médicins*, a term which seems more applicable, as both surgical and medical affections are treated by military practitioners.

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Lectures
ON
LITHOTOMY AND LITHOTRITY.

(Delivered at St. Mary's Hospital.)

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LECTURE I.

GENTLEMEN,—Two cases which have recently been under my care in this hospital afford me an opportunity of directing your attention to one of the most important and interesting subjects in the whole range of surgical science. I allude to the various methods which have been devised for the relief or cure of stone in the bladder. So vast a subject, gentlemen, including such a number and variety of important points, many of which are still matters of debate amongst the best surgeons, cannot be treated in anything like a satisfactory manner during a single lecture. I therefore propose addressing to you a series of lectures on stone in the bladder, its treatment by the knife or by crushing instruments, and on the indications, comparative advantages, and applicability of lithotomy and lithotrity. The present lecture will be mainly devoted to clinical remarks on one of the cases alluded to, and may in some measure serve as a preface to those which are to follow.

Two patients, as I observed, were recently under my care for stone in the bladder. The one was young, the other old. In one I performed the operation of lithotomy: it lasted about a minute, was unattended by the slightest accident, and the patient has recovered.

In the other case, the patient was in his seventieth year: the operation selected was lithotrity; the case to all appearances was not unfavourable; the operation of crushing the stone was effected without any difficulty; but on the day after the second sitting unfavourable symptoms set in, the man began to sink, and died within a week from the first operation.

The contrast between these two cases (and a similar one will often present itself to you in practice) is striking. We cannot avoid asking ourselves whence arose the difference in the results? Why one patient died, while the other recovered? Why lithotomy was selected in the one instance, while lithotrity was employed in the other? And these questions naturally lead to a consideration of two paramount points—viz. the indications which induce the surgeon to employ lithotomy in preference to lithotrity, or *vice versâ;* and the different accidents which may supervene during or after these operations, either retarding the cure, or involving the life of the patient.

It would be impossible for me to comprise all that might be said on these points in a single lecture. I shall therefore at present dwell only on those which are most essential for practice, and which bear on the case I am about to relate to you. The following is a short history of it:—

The patient, James F——, was admitted into the hospital, under my care, on the 24th of March. He was seventy years of age, yet appeared to have suffered little in his general health, having principally complained, from time to time, of heartburn. He had, however, laboured under an affection of the bladder for several years. The symptoms of stone were evident and characteristic, the principal being pain referred to the region of the bladder, and brought on by any motion, such as that of riding in an omnibus; pain in the glans penis; hæmaturia, especially after walking; frequent and sudden desire to pass his urine, which, however, disturbed him little while lying down. For the last nine months he had experienced a sensation of numbness down the thighs, and for ten years he had not been able to discharge his urine without the aid of the catheter. The urine latterly was secreted in increased quantities, and it contained a considerable proportion of mucus, and some pus.

The presence of a calculus in the bladder was readily detected in the usual manner. Though of large size, it was soft, and easily crushed between the blades of the lithotrite. On examining the fragments which came away, they were found to consist of the triple phosphate, or ammoniaco-magnesian phosphate calculus. The patient was ordered to have twelve minims of Battley's sedative three times a day, to allay any irritation which might arise from the operation.

On the 25th, the bladder had been emptied by the catheter seven or eight times since the operation, and a considerable quantity of phosphatic *débris* came away at each introduction; the urine was alkaline.

On the 26th, the bladder was very irritable. The patient was obliged to introduce his catheter nearly every hour; the urine withdrawn contained mucus, clots of blood, and fragments of the calculus.

On the 27th, the lithotrite was again introduced, and the calculus crushed without any difficulty. This operation, however, was soon followed by considerable local and constitutional disturbance. The pulse was now 120, the tongue very brown and dry; there was great thirst, and he complained of pain and considerable swelling of the left knee-joint. The patient required the use of the catheter every half-hour, or oftener. Diffusible stimuli, with opium, were administered at once, and the bladder was repeatedly washed out; but the patient began to sink, became rapidly worse, and expired on the 31st March.

His body was examined thirty hours after death. The pulmonary tissue was healthy, though gorged with dark blood. The right pleura was universally adherent from old disease. At the upper part of the pericardium, externally, and at the point where this membrane is covered by the pleura, there was an encysted tumour, as large as a walnut, and containing brownish-green matter. Heart large and flabby; the right cavities filled with dark blood, staining the valves and lining membrane; the liver was soft, but otherwise healthy; the kidneys presented externally a dark, mottled appearance, and were considerably congested within. The other organs of the abdomen were healthy. The large veins were filled with blood, and the lining membrane of both common and iliac veins was stained of a deep red colour. This staining extended into the external and internal iliac and femoral veins, but the walls of these vessels were not thickened. The external surface of the bladder presented a considerable degree of vascularity. It was contracted, and the muscular coat was much thickened. It contained some small particles of the stone, but nearly the whole had come away. The mucous membrane was here and there coated with patches of phosphatic deposit. No ulceration, breach of surface, or signs of inflammation, were discovered in any portion of the mucous membrane, but at one part a sacculated cavity, about the size of a walnut, was observed, and this contained a quantity of very fœtid pus. There was a round projection at the orifice of the urethra, which also was coated with phosphates. The veins of the prostatic plexus were enlarged, thickened, and many of them filled with coagula.

On opening the left knee-joint, some thin, chocolate-coloured, purulent fluid escaped; the synovial membrane was highly injected, and the articular cartilage covering the external condyle was softened and ulcerated in its centre, the bone being laid bare at one point. The corresponding cartilaginous surface of the patella was superficially ulcerated. No ulceration of the surface of the internal condyle or semilunar cartilage could be discovered. On opening the right knee-joint, some pus escaped; the fluid was nearly healthy in appearance; the articular cartilages were ulcerated in the same situation as on the left side, though in a less degree. The bone was not laid bare; the synovial membrane was highly injected. The head of the right femur was marked by fine red injection, and the synovial membrane round the neck of the left femur was very vascular. The shoulder-joints appeared healthy. The examination did not extend further.

There are many points in this case, gentlemen, worthy of your attention; but I can only examine the most striking, and these are, the age of the patient, the nature of the calculus, the paralyzed state of the bladder, co-existing with hypertrophy and contraction of this organ, the sacculus or cyst containing pus, the enlarged prostate, and, lastly, the cause of death, arising, as the post-mortem examination showed us, from what is called purulent absorption.

On the symptoms of stone in the present case I need not dwell: they offered nothing remarkable. The patient's health is stated not to have suffered much, though it is evident that his disease had been of long duration. This is a circumstance which I have occasionally observed, and which has been noticed by all writers on diseases of the urinary organs. You should therefore remember that not only the constitutional but the local signs of vesical calculus may be very slight, or even so far absent as to lead the surgeon to overlook the existence of the disease altogether. I do not mention this as a means of affording you an excuse in certain cases, but to stimulate you to increased care and perseverance in the examination of all doubtful ones.

Scarpa, Blanchard, Travers, and other writers mention cases in which the symptoms were so slight, that the presence of a calculus was never even suspected during life. Some time ago I saw a gentleman who had been sounded by an experienced surgeon, yet the latter was unable to say whether or not there was a stone in the bladder. The patient died sixteen months afterwards, and a calculus weighing four ounces and a half was discovered. The largest calculus in St. Bartholomew's Hospital was taken from a patient who had been often sounded; and the museum of the College of Surgeons contains the bladder of a man who had committed suicide after long suffering from stone, though the late Mr. Abernethy and many other surgeons of the day had repeatedly sounded him, without having detected the presence of a calculus.

In the case of F——, the local signs were evident, though, as I remarked, the constitutional disturbance never reached any considerable degree; and this is a point worthy of a moment's attention, when we reflect, not only on the great duration of the disease, but on the nature of the calculus with which the patient was affected. It was the triple phosphate or ammoniaco-magnesian phosphate calculus. This concretion is formed by an admixture of the neutral phosphate of magnesia and ammonia with a bibasic phosphate. It might appear to you at first sight that the chemical nature of the calculus could exercise little influence on the operation performed for its extraction, or that a knowledge of its composition could be of little use beyond the domain of chemistry; but it is always useful to know beforehand the nature of the stone in the case on which we are about to operate: such knowledge furnishes several indications which should not be neglected. Thus we know that the phosphatic calculi are generally friable, so as to be more or less readily crushed, and, what is of much more importance, we know that the deposition of the phosphates from urine usually takes place in debilitated subjects, in persons of broken-down constitutions, and is mostly accompanied by considerable nervous irritation, lumbar pains, and great general debility. Indeed, it appears highly probable that the deposition of phosphatic calculi requires a certain degree of irritation or inflammation of the mucous membrane of the urinary organs, and their presence therefore indicates a highly disordered state of the urinary organs. They are readily deposited round any foreign body which irritates the bladder, or on such points of its mucous surface as have been most irritated by the calculus, or its fragments when broken up. This fact was illustrated by the post-mortem examination of my patient, and it is highly probable that the unfortunate complication which proved so suddenly fatal in his case, was connected with the irritative state of which the phosphatic secretion now alluded to was a result, and therefore an indication. The practical conclusion then, that I would have you draw from this point, relative to the nature of the stone, is, that the triple phosphate and fusible calculi are, cæteris paribus, less favourable subjects, if I may use the term, for operation than the other varieties of calculi; and this remark applies both to lithotomy and lithotrity—the indication, however, rather pointing to an election of the former in cases where an operation cannot be avoided.

The next point, gentlemen, for consideration, is the relative ages of our two patients. If you ask me why I selected lithotomy for the boy and lithotrity for the man, I will tell you that I was mainly influenced by the difference between their ages. My own experience has convinced me that, in an immense majority of cases, lithotomy is successful when performed on patients under twenty-five to thirty years of age. Success, in fact, is the rule, and failure the very rare exception. This fact alone should lead us to hesitate before we abandon a method, the success of which in the young subject is placed beyond doubt by the experience of nearly all surgeons in extensive practice. With old people the case is different. Here the proportion between deaths and cures from lithotomy is nearly balanced. Thus in Mr. Smith's cases at the Bristol Hospital, we find that between the ages of sixty and seventy, two patients out of every three died; between seventy and eighty, one in two; and from the extensive researches of Mr. Crosse, of Norwich, we learn that from forty to eighty years the proportion of deaths is one in four. The statistics of the Parisian hospitals give 105 deaths for 297 operations in old people, or one in 2⅘.

We shall presently examine the different circumstances under which death takes place from both operations, the symptoms to which they may respectively give rise, and the reasons for selecting one in preference to the other; but I may now remark that there exists a strong reason why lithotomy is, as a general rule, the preferable operation for children under twelve years of age. At an early period of life the genito-urinary organs are not sufficiently developed to permit the ready introduction and manœuvring of the instruments employed for crushing stone in the bladder; but this and other questions of the same kind will be more conveniently examined by-and-bye. Let us therefore return to the case of F——, simply remarking that his advanced age was an unfavourable circumstance under any method. The history of his case informs us that he laboured under paralysis—I should, perhaps, rather say atony—of the bladder, for a very considerable period previous to the operation. For ten years he had never been able to discharge his urine without the aid of a catheter, which he had learned to introduce himself. After death the muscular coat of the bladder was found much thickened, and its cavity was contracted. This you may at once remark to me is an extraordinary circumstance: the post mortem appearances are inconsistent with the symptoms observed during life. How could paralysis of the bladder co-exist with the hypertrophy of the muscular coat and contraction of the cavity, observed in the present case?

The atony of the bladder, gentlemen, which accompanies vesical calculus, is a condition that has not been studied with the same care which has been bestowed on many other points; nor are the circumstances attending it yet very clearly made out. When you reflect on the constant irritation produced by stone on an organ, the chief function of which, like that of the heart, is to contract on its contents for the purpose of expelling them, you can readily understand that vesical calculus very often produces hypertrophy of the bladder, with diminution of its cavity. These are the natural consequences of the repeated efforts of the organ to expel the foreign body, or of the repeated contractions excited by a permanent source of irritation. Indeed, one of the principal difficulties against which the surgeon has to contend, in the performance of the lithotomy, or even lithotrity, is this hypertrophied, contracted, and irritable state of the organ, which gives it a tendency to contract still further on any additional irritation, and thus often renders it a matter of considerable difficulty, either to seize the stone with the forceps or extract it when laid hold of.

It is not easy to understand how partial, much less complete, paralysis of the bladder could exist with such a state of the bladder as the one now described; but the recent researches of M. Civiale have thrown much light on this obscure part of our subject. According to his experience, hypertrophy of the bladder may be of two kinds, the active or the passive. In the former we have contraction of the cavity of the bladder, and in the latter dilatation. The active often changes into the passive form, and that in a very sudden manner.

Atony of the bladder, in calculous patients, generally co-exists with atrophy and passive dilatation of that organ; but in some rare cases we have nearly total incapacity of expelling the urine, joined to active hypertrophy. A case of this kind occurred at the Clinical Hospital of the medical faculty at Paris, in the year 1839. A patient was admitted labouring under stone and debility of the bladder to such a degree, that only a few drops of urine were expelled at a time. He was cut, but died on the 6th day. The bladder was found much contracted and hypertrophical, exactly as occurred in my case.

Atony, or partial paralysis of the bladder, is always an unfavourable complication of stone. When the inability to discharge the urine does not depend on some mechanical impediment in the urethra, or at the neck of the bladder, as enlargement of prostate, it generally is connected with chronic inflammation of the bladder, or a tendency to softening of the kidneys; and any operation may light up the latent malady, and give rise to a fatal result. In practice, therefore, you cannot watch these cases too carefully. The condition of the urinary organs may be very unfavourable, while the general symptoms are comparatively slight. If lithotrity be the mode which you have adopted, you must be alive to the first unfavourable appearances; and if signs of inflammation set in, if nervous or other symptoms acquire any degree of intensity, I would advise you to abandon the operation at once, and have recourse to lithotomy. It is the patient's only chance. Any continuation of the attempt to break up the calculus would only hasten the development of the symptoms which have appeared, and seriously endanger the life of your patient—perhaps render death inevitable.

Hypertrophy of the muscular fibres of the bladder is often attended by another deviation from the natural state, an example of which we find in the case now under our consideration. I allude to those sacculated prolongations of the mucous membrane, of which so much is said in relation to encysted calculi. These sacs or cysts are produced by protrusion of the mucous membrane between the hypertrophied muscular fibres, which have left interstices between them; and hence, when the bladder contracts strongly while the flow of urine is prevented by any impediment, as a calculous, stricture of the urethra, &c., you can readily conceive how the mucous lining of the organ may form a kind of hernial sac through the muscular fibres.

The existence of these sacculated cavities is unfavourable in several points of view, but I shall only notice those which bear on the present case. The urine and calculous deposits are, of course, apt to sojourn in them for a considerable time, and hence they are extremely apt to take on the suppurative inflammation.

Besides this, they seem more subject to chronic inflammation than other portions of the mucous membrane; and these circumstances may explain an opinion of the late Mr. Liston, which was communicated to me at a recent meeting of the Pathological Society—viz., that the presence of these sacs in the bladder is a predisposing cause of purulent absorption. In fact, as I shall presently show, purulent absorption appears to require the presence of pus in some tissue, or in an inflamed vein; and also the coincidence of some injury or operation by which the tendency to lay down the pus in a distant part is called into action. The cyst, then, may have been a predisposing cause to the disease which cut off my patient, by furnishing purulent matter; and the opinion of Mr. Liston thus receives a rational explanation.

I have now, gentlemen, to direct your attention to the most interesting part of the case, both in a practical and pathological point of view.

The operation to which my patient was submitted had been performed without any difficulty on the 25th of March, and repeated on the 27th. After the second sitting, constitutional disturbance occurred, and was followed, on the 29th, by pain and swelling of the knee-joint, with typhoid symptoms, under which the man sunk in forty-eight hours. The post-mortem appearances, as you must remember, were, deposits of pus on the pericardium and in the knee-joints, a sacculated cyst of the bladder filled with fœtid pus, inflammation of the prostatic veins, and hypertrophy with contraction of the bladder.

The immediate cause of death, then, in the present case, was that unfavourable complication which sometimes accompanies every kind of operation, and is known by the name of *purulent infection*. Upon this I now propose to make some remarks, bringing them to bear, as far as possible, on the connexion of this accident with diseases of, and operations on, the genito-urinary organs.

Purulent infection, gentlemen, may, perhaps, be a new name to you, for it is not treated as a distinct affection in many of our standard works on surgery, but you will readily understand the disease to which I allude from the following brief description:—

A patient has undergone an operation, say amputation of the leg, and everything appears to go on favourably for a short time, but without any appreciable cause the most serious symptoms manifest themselves; the patient is seized with severe rigors, followed by fever, and often by perspiration, which bear a very close resemblance to those of intermittent fever; the rigors are obstinate and return every day; they are soon followed by a state of prostration, the complexion becomes yellowish and dull, the tongue dry and brown, the pulse quick and feeble; there is often delirium at intervals, and diarrhœa with tympanitis. These general signs are, in a great many cases, accompanied by those of local inflammation in some organ or tissue, very often in the chest, sometimes in the abdomen, but far most frequently in some of the joints or cellular tissue of the extremities; the joints swell, become red and painful, or purulent collections form in the cellular tissue between the muscles. After death,—for these cases are very often fatal,—we find abscesses in the lungs, liver, &c., in the brain, heart, kidneys, uterus; or purulent infiltration of the extremities in which tumefaction was observed during life. The joints sometimes present traces of inflammation, as in F——'s case; but this is rare: more frequently they contain purulent matter, without any trace of ulceration or inflammation. The veins passing from the part which had been primarily injured are very often inflamed, and sometimes contain pus globules, and hence many surgeons consider the disease as essentially connected with phlebitis; but it is certain that the most careful examination has failed to detect inflammation of the veins in several instances. In some cases, I should observe, the symptoms are far from presenting the degree of seriousness just alluded to. There are no rigors; no great fever; no local signs of inflammation in the organs or joints; yet the patient sinks rapidly into a typhoid state, and after death the same purulent deposits are found in the lungs, joints, &c., as are observed in the more severe cases. The most remarkable part of the constitutional symptoms which accompany purulent infection are undoubtedly the rigors, followed by fever, which are extremely constant in their appearance, and have often led the surgeon to mistake the disease for ague. Several cases of this kind are on record: I shall relate one or two presently. It would appear as if each new deposit of pus in the tissues was announced by a rigor; but in many cases the rigors are absent, and the general symptoms confined to those of debility and rapid sinking. The pains in the joints may be mistaken for rheumatism, and when the skin over the articulation is at the same time red and inflamed, the error is more readily committed by those practitioners who are unaware how often and how unexpectedly the result I now speak of may complicate the most simple and slight operations.

Purulent infection may succeed any operation or injury which has given rise to a secretion of pus in the part locally affected. This is the principal fact which may be deduced from the observations made up to the present time. The severity of the injury, and the quantity of pus secreted by the injured tissue, do not seem to have much influence in determining the secondary affection. It occurs after amputations, fractures, lithotomy, &c., but it may likewise supervene on trifling operations, or after the excision of piles, venesection, the application of a seton or cautery; from a boil or a pustule, or even after vaccination. Legallois relates a case in which purulent infection followed the application of a seton to the neck for the cure of ophthalmia. Some time after the patient was seized with violent rigors, fell into a state of extreme debility, and died on the fourth day. Purulent collections were found in the liver, but all the other viscera were healthy. No pus could be discovered in the blood, nor were the veins inflamed at any point.

Purulent infection may arise from phlebitis, and this form has been better studied by us than any other. Its connexion with puerperal fever and other affections of the generative organs in females, was long since pointed out by Doctors Fergusson, Davis, Lee, and others. In my work on "Diseases of the Hip-joint" I have devoted a chapter to puerperal affections of the joints, in which the coincidence of purulent deposit into the articulations with a suppurative condition of the uterus is clearly established by several post-mortem examinations. In one of these cases the blood taken from the inferior vena cava just at its entrance into the auricle, was found to contain, besides the usual blood-corpuscles, pus-globules or true pus. These were special bodies, whitish and granular on the surface, with a shell easily rendered pellucid by sulphurous and acetic acids, and these showing three or four central molecules, these latter being unchanged by most acids, and easily dissolved by caustic alkalies. The diameter of the pus-globules was $\frac{1}{3000}$ to $\frac{1}{2400}$ of an inch.

But admitting the existence of pus in the tissues or veins of the part primarily injured, it still remains a question in what manner the secondary depositions of pus in the lungs, liver, joints, &c., take place. Various explanations have been offered; but I am still inclined to adhere to the one which I published in the work just mentioned, and attribute them to a general contamination of the circulating fluid by the purulent matter absorbed into it. When this contamination has taken place, after the manner of a poison, we can conceive that the secondary deposits occur from metastasis, or that the vitiated blood circulating in the capillaries may, under certain conditions of disordered health, or the impulse of an injury, excite low inflammation, and thus produce secondary abscess or purulent infiltration. However this may be, it is certain that all these forms of purulent infection constitute one and the same affection, and that we take a limited view of the subject when we distinguish them, as has been too much the custom in this country, according to their immediate exciting cause. The affection of the joints which I called puerperal, is identical with the affection of the same parts which occurs after amputation, lithotomy, &c. Even the suppurative inflammation of the eye which was thought to be peculiar to the puerperal state, is now well known to form part and parcel of purulent infection.

These few general remarks, gentlemen, have appeared to me necessary as an introduction to what I am about to say on the most interesting portion of our case. I allude to the cause of F——'s death. It arose from purulent infection; and I shall conclude this lecture with some observations on the connexion which exists between this disorder and injuries to the genito-urinary apparatus of the male, whether arising from accident, disease, or surgical operation. This subject is entirely new; it has not been alluded to, much less treated of, in any English work on Lithotrity with which I am acquainted, and the remarks I have to make will therefore be designed rather to direct your attention to the subject than to furnish any complete details respecting it.

Dupuytren was, I believe, one of the first surgeons who pointed out the connexion which sometimes exists between purulent infection and operations on the genito-urinary organs of the male subject, but his remarks were not followed up; and it is to M. Civiale that we are indebted for anything resembling a satisfactory account of this interesting complication. He has been kind enough to communicate to me the following cases, of which I have made an abstract:—

Case 1.—A naval officer, thirty-six years of age, was affected with stricture of the urethra, and obtained much relief from the passage of bougies. One day, however, he attempted to pass too large an instrument; in the evening he had some fever, which increased and continued for several days afterwards. There was now pain in the left leg; but this soon ceased and passed to the right shoulder, where it was more violent, being accompanied by redness and swelling. The tongue was dry and brown, and the patient coughed a little. A small superficial abscess was discovered in the scrotum, and opened. The urine withdrawn from the bladder was of a deep orange colour, and fœtid. The abscess over the shoulder-joint was opened; a second formed on the left leg. Although the discharge of pus was not abundant, the patient's general state was very unfavourable; he was extremely irritable, became weak, and sunk in an adynamic condition. The body was not opened.

Case 2.—This patient, a man of robust constitution, also laboured under stricture of the urethra. The canal was slightly cauterized twice, and bougies had nearly completed the cure, when on a sudden he was attacked by a violent accession of fever, which recurred on the following day. A large abscess formed in the perinæum, and soon afterwards another abscess in the right leg. These were opened, and the matter discharged. A third abscess now appeared over the right knee-joint, and on the following day a fourth one over the left knee. The pain and swelling extended upwards from this point to the groin, and the patient died three days afterwards.

Case 3.—A gentleman, affected with stricture and unable to pass his urine, was treated in the usual way. A very small bougie was passed down to the strictured point, and withdrawn a few minutes afterwards. This was followed by the discharge of some urine. The stricture was now carefully and gradually dilated until a good-sized bougie could be passed without any difficulty, when on a sudden the patient was attacked by pains in the limbs. A swelling appeared over the outer left ankle, and soon mounted upwards to the knee and thigh; pressure caused pain; the tissues were infiltrated, although the external signs of inflammation were slight. The general condition of the patient, however, was very alarming; he was unable to sleep; the pulse was quick and small; there was delirium and considerable prostration of strength. Several of the abscesses were now opened, but others formed in different parts. Antiphlogistic means were employed; the dangerous symptoms gradually subsided, and the patient ultimately recovered after a long convalescence.

Case 4.—A man, fifty-six years of age, discharged from time to time small calculous concretions through the urethra. He experienced some pains in the region of the kidney, and traces of numerous old abscesses were noticed on several parts of the body. He was admitted into the Necker Hospital, under M. Civiale, in 1834. A small stone was discovered in the bladder, and the man was submitted to the preliminary treatment of introducing bougies into the urethra to prepare it for the instruments. On one occasion, the bougie being withdrawn, he was attacked by fever, which continued during the following day; a small calculus was now found pressing against the neck of the bladder; it was pushed back, but two days afterwards was expelled by the efforts of the bladder alone. The patient had now accessions of fever exactly similar to those of a quotidian remittent; a large abscess formed in the left thigh, and was opened; in about twelve days the man appeared so well that it was thought he might be able to bear a repetition of the preparatory treatment. But the passage of the bougie again caused a violent accession of fever as before, and it was judged prudent not to continue the treatment. He was therefore discharged from the hospital.

Case 5.—A mason, thirty-five years of age, presented all the symptoms of urinary calculus. His moral condition was not very favourable, but the urinary organs appeared to be healthy. On the 21st February the stone was crushed; some febrile symptoms set in, and returned on the following day. On the 23rd, there were pricking pains in the region of the right kidney, anxiety, moral depression, and considerable pain on making water, which was high-coloured, with fever. A fragment of calculus was now discovered in the urethra and withdrawn. This was followed by great abatement of the symptoms, but a few days afterwards, from the passage of a rough fragment of stone, the patient had an accession of fever, preceded by severe rigors and followed by sweating. On May 1st, the renal pain had completely disappeared; severe pain, however, suddenly attacked the right ankle-joint. The pain and inflammation augmented up to the 16th, when one of the abscesses opened spontaneously. Many others now followed in various parts of the foot and ankle; they were opened successively as they did not implicate any of the articulations; the matter discharged was thin and watery, like that furnished by certain urinary abscesses. The man's health now improved so far that it became safe to resume the operation of lithotrity on the 5th of September, and after five sittings he was completely relieved of his calculus, without the occurrence of any further accident.

Case 6.—In the year 1839, a man twenty-four years of age was admitted into the hospital of La Pitié, with retention of urine and severe pain in the region of the bladder, consequent on gonorrhœa. The patient was extremely feeble. On passing the catheter, a quantity of pus, mixed with bloody urine and pure blood, came away. No lesion of the neck of the bladder or of the urethra could be discovered. The urine continued sanguinolent, and could not be discharged without the aid of the catheter. Severe pain now occurred in the loins and round the anus. On passing the finger up the rectum, an abscess of the prostatic region was discovered, and this abscess subsequently opened into the rectum. The weakness of the patient gradually increased, and he was extremely agitated at night. The left thigh now became the seat of violent pain, fluctuation was felt, and the abscess opened, but the patient sunk immediately afterwards.

On examining the body, the kidneys were found healthy; the bladder was hypertrophied, and its mucous membrane covered with a lining of false membrane. A perforation existed at the posterior part of the bladder, but the aperture was closely plugged up by the intestine, which was applied against it. The prostate was enlarged, and near it was an abscess, which had made its way into the rectum. The muscles and cellular tissue of the thigh were bathed in sanious pus, and considerably disorganized, and it was found that the inflammation had extended upwards to the lower angle of the scapula, separating the skin from the subjacent tissues; but at the lower part of the back, between the thigh and buttock, there was a healthy space, so that it was impossible to discover how the inflammation had ascended.

Case 7.—A man, seventy years of age, was admitted into La Charité with retention of urine, attributed to enlargement of the prostate. This gland, in fact, was found on examination to be tumefied, the bladder was in a state of atony, and the urine highly ammoniacal. During the treatment of the case, the testicles became inflamed. The patient was unable to bear a catheter in the bladder for any length of time. An attempt was now made to depress the enlarged prostate with an instrument introduced into the urethra; this, it was thought, gave some relief, but on a sudden the calf of the right leg became painful and swollen. This excited no attention. On the next day, the left became swollen, but without redness or pain. The patient now experienced great agitation, accompanied by vomiting; the face was pale; pulse quick and feeble; he sunk rapidly, in spite of all the means employed. The veins of the lower extremities contained some dark, coagulated blood; those of the left leg contained pus globules, and their lining membrane was inflamed.

Case 8.—A man, forty-three years of age, was admitted into the Necker Hospital in the year 1839; on sounding him, a large stone was discovered in the bladder. After eight days' preparatory treatment, the operation of lithotrity was performed. During the three following days, the patient passed a number of fragments without any suffering; but on the fourth day fever set in, and a swelling appeared over the right ankle-joint, which was painful, although the skin seemed unchanged. The inflammation next attacked the left knee, jaundice set in, and the patient sunk.

Kidneys and ureters healthy. Large quantities of pus in the right knee-joint; some pus also in the left knee-joint; and a smaller quantity still in the right wrist-joint, which had not appeared to be affected during life.

Case 9.—The subject of this case was admitted into the Necker Hospital in 1840. A calculus was discovered, and the preparatory treatment commenced at once. The introduction of a bougie No. 9 caused some fever, which subsided in a few days, but again returned more violently, and was accompanied by pains in the loins. This febrile state continued for five days, when both knee-joints were attacked with such violent pain, that all motion became impossible. The pain passed down the back of the leg to the ankle-joint, which next became involved. The patient soon sunk.

The bladder was sacculated, and contained two calculi. The whole of the leg, from the knee to the ankle, was one vast abscess; the knee-joint contained a good deal of pus; the articular cartilages of the femur and tibia had disappeared, and ulceration of the bony surfaces had commenced. Purulent infiltration was also discovered on the upper and outer part of the femur.

Case 10.—A man, fifty-nine years of age, was admitted into the Necker Hospital towards the end of the year 1841. He complained of pain in the urethra and difficulty in passing his urine. On careful examination, no other lesion was discovered except a thickening, with rigidity, in a certain point of the urethra, not extending beyond a few lines. The passage of a bougie gave great relief, and the patient thought himself cured, when he was attacked by fever without any discoverable cause. The left knee soon became painful and swollen, but the skin was not discoloured. In a few days fluctuation was evident, and an opening was made into the abscess, which gave issue to a quantity of thin pus. This was not followed by any relief; and as the patient's general health was rapidly declining, he insisted on being discharged from the hospital.

Case 11.—Dr. Nick relates the case of a man, twenty-nine years of age, admitted into hospital for retention of urine, produced by the abuse of venery and alcohol. A catheter was easily passed into the bladder, and a pint of urine withdrawn. On the following day the patient was able to discharge his urine without the aid of a catheter; but on the third and fourth days he had violent rigors, with fever and pain in various joints, with violent stitches in the chest, impeding respiration; and he sunk on the fifth day.

The bladder and urethra were healthy; the prostate gland was slightly enlarged and contained a cavity not larger than a nut, filled with sanious pus; the tissues of the right foot were much infiltrated, and the ankle-joint was inflamed, but did not contain any pus. Underneath the left pectoral muscle about a spoonful of pus was found infiltrated into the cellular tissue between the muscle and ribs.

Case 12.—In 1841, M. Roux lost a patient under circumstances exactly similar to those related above. After some fruitless attempts to extract the fragments of the calculus, the patient was seized with pains in the joints, &c., which bore the greatest resemblance to acute rheumatism. Typhoid symptoms supervened; the man died, and pus was found in both knee-joints and in the left shoulder-joint.

The preceding cases, gentlemen, enable us to trace with some degree of certainty the history of purulent infection as connected with operations on the genito-urinary organs, and particularly with lithotrity. The first circumstance which must strike you is the fact, that this serious affection may be developed by the most trifling operation, such as the introduction of a bougie into the urethra. The slight irritation caused by the passage of a moderately-sized instrument, either down to a stricture or into the bladder, was in some cases sufficient to excite the general reaction, followed by abundant deposit of pus in the joints or cellular tissue, which characterizes purulent infection. In other cases the disease supervened, as in the one which occurred to myself, on attempts to crush the stone with the lithotrite.

It is extremely difficult to explain how the passage of a bougie into the urethra could become an exciting cause of purulent infection, unless we admit the co-existence of some slight abrasion of the mucous membrane, furnishing pus; the presence of a small abscess in the bladder, prostate, or neighbouring tissues; or, finally, the existence of inflammation in some part of the venous system. It is very possible that such lesions, when slight, may have been overlooked. In one case, a small abscess was discovered in the centre of the prostate gland, and would certainly have escaped notice had not the post-mortem examination been conducted with care. The smallest suppurating surface is sufficient to become a determining cause, for the quantity of pus found in the joints and tissues does not in any way depend on the quantity furnished by the tissue or part primarily affected. In some cases the primary lesion was traced to the suppurating surface of a sac contained in the bladder.

This, as I have already remarked, was one of the principal features in the case of F———. Mr. Liston regarded these sacs or cysts as a predisposing cause of purulent infiltration, and M. Civiale observes that he has frequently seen purulent catarrh of the bladder occasioned by the sojourn of urine or fragments of gravel in these cysts. Here we find an explanation of Mr. Liston's remark; the cysts furnish the pus, and the operation is the exciting cause of the peculiar process by which it is taken into the circulation. Still there remains something unexplained, a point which our researches have not yet clearly carried out. The mere presence of pus in the blood is not of itself sufficient to cause the disease. We have numerous examples of the absorption of the contents of abscesses, and why should the matter absorbed prove innoxious in one case, while in another it lights up a most formidable and often fatal disease? It is impossible to answer this question satisfactorily in the present state of our knowledge. All we know is, that purulent infiltration most readily occurs under certain states of the constitution which has been broken down by previous and long-standing disease.

In patients of this kind, a slight irritation, just as well as in the severe operation of lithotomy, or attempts to break up the stone, communicates a shock to the general system, which is soon followed by fever and by the local signs of purulent infection.

Of the symptoms, little need be said. The constitutional signs are exactly the same as those which accompany purulent infection from other causes. The most prominent are the violent accessions of fever, so closely resembling those of ague that they have often been mistaken for this complaint, and treated with bark. You must, however, remember, that this peculiar form of febrile attack does not always occur. In some cases the fever assumes more of a typhoid character; while in others the deposit of pus takes place with hardly any constitutional disturbance at all. These latter cases are extremely insidious, and are often revealed, even to the best surgeons, by the post-mortem examination alone.

The deposit of pus, as you have seen, may take place in any part of the body, but the articulations and their adjoining tissues seem to be most liable to it: at least, such has been the case in operations connected with the genito-urinary system. M. Velpeau asserts that the pus is merely effused into the cavity of the joints, which never exhibits any signs of local inflammation. This is an error. In my case, the synovial membrane was almost disorganized, and traces of inflammation were observed in one or two of the cases recorded by M. Civiale.

According to the experience of French surgeons, phlebitis and purulent infection are not unfrequent consequences of *lithotomy*. My own experience inclines me to say that it is comparatively rare in this country. After *lithotrity*, purulent infection is unquestionably a rare occurrence. M. Civiale has informed me that death from this cause has occurred in only three cases out of more than

400 operated on by him. I may therefore consider myself unfortunate in having met with a single case during my more limited practice. There was nothing in my case to contra-indicate the operation of lithotrity, and the complication under which the patient sunk arose, as in nearly all the cases I have related to you, without any discoverable cause. Had I been aware of the existence of a cyst in the bladder, and, above all, that this cyst contained pus, I might, perhaps, have hesitated between lithotomy and lithotrity; but it was necessary, at all events, to relieve the man from stone; and purulent infection, according to the experience of the best surgeons, is just as likely, if not more so, to follow the former operation as the latter. It was one of those unfortunate complications which no practitioner can either foresee or avoid, because modern science has not yet revealed to us the circumstances under which it is developed.

A few words on the treatment, and I shall conclude. Whatever the general condition of the patient may be, it would seem that we may draw a distinction between cases in which the purulent deposit is confined to the inter-muscular tissues and those where the pus is deposited in important viscera, or in the cavities of the joints. Many of the former do well after evacuation of the fluid by incisions: the latter, I believe, almost invariably prove fatal. It is unnecessary to observe that all attempts to continue an operation should be suspended the moment you perceive any severe rigors followed by fever, especially if you notice pain and swelling in or about any of the joints. When the inflammation of the latter is deep-seated, blisters may be applied over the articulations; and for the constitutional disturbance, the remedies in which I would place most reliance are diffusible stimuli, with the sulphate of quinine.

Lettsomian Lectures.

No. I.

THE PSYCHOLOGICAL CHARACTER OF THE PHYSICIAN.*

By FORBES WINSLOW, M.D., F.R.C.P. Ed.,

VICE-PRESIDENT AND LETTSOMIAN PROFESSOR OF MEDICINE OF THE MEDICAL SOCIETY OF LONDON, ETC. ETC.

Mr. President and Gentlemen.—Having had the honour of being appointed your Lettsomian professor of medicine, I accepted the office with, I hope, a humble appreciation of my capacity to discharge satisfactorily to my own mind its duties in a manner commensurate with their grave importance. The distinction conferred upon me is one not lightly to be esteemed. To be selected from a body of physicians of great and admitted eminence; of profound learning; of scientific attainments of a high order; and of undoubted eloquence; as one of your Lettsomian lecturers, is an event which I shall ever cherish with lively emotions, as one of the most pleasing and personally gratifying occurrences in my chequered life.

The post thus assigned to me by your kindness, entails upon me the pleasing duty of delivering, before this Society, *three* lectures on topics connected with that division of our science with which the physician is supposed to be especially conversant. In selecting three topics for illustration, I felt anxious to bring under your notice subjects worthy of your consideration; assuring myself, at the same time, that they involved, in their elucidation, points of theoretical as well as of practical value. I flattered myself that I should be realizing your anticipations, and be acting in unison with the wishes of the Council who nominated me, in conjunction with my esteemed colleague, Mr. Hancock, if I were to confine myself to the exposition of three points connected with those investigations with which my own mind is supposed to be more particularly occupied. Under this impression, I have, with I hope, a proper sense of the difficulty of my self-imposed task, selected, as the subject of my first and introductory lecture, a point of extreme interest, and, to my conception, of great practical importance. Having, from an early period, formed a high estimate of, and derived an exalted degree of pleasure from, the study of mental philosophy, and occupied much of my time in the investigation of questions relating to the influence of the spiritual upon the material portions of our organization, I may, perhaps, be excused, if I should, in the course of my remarks upon the necessity of a more general and extended knowledge of the science of mind, form a somewhat extravagant conception of the value of that division of my subject which presents so many charms to my own imagination. With the design of demonstrating, not only the theoretical, but the important practical advantages resulting from this study, I have undertaken, in my first lecture, to illustrate the *special psychological attributes of the physician.* It will be my duty to claim for ourselves higher and more exalted functions than those usually assigned to the faculty by men occupied in the pursuit of other departments of knowledge; it will be my province to consider the physician in his *spiritual* character and relations, as having at his command, and under his control, agents of great power and magnitude—materials of immense value, which we have not sufficiently recognised or appreciated. We form but a mean estimate of our high destination—of the duties of our noble and dignified calling, if we conceive that our operations are limited to a successful application of mere *physical* agents. God forbid that we should thus vilify ourselves, and degrade our science! "A physician whose horizon is bounded by an historical knowledge of the human machine, and who can only distinguish terminologically and locally the coarser wheels of this piece of intellectual clockwork, may be, perhaps, idolized by the mob; but he will never raise the Hippocratic art above the narrow sphere of a mere breadearning craft."*

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* Delivered before the Medical Society of London, April 7, 1852.

* Schiller.

The physician is daily called upon, in the exercise of his vocation, to witness the powerful influences of mental emotion upon the material organization. He recognises the fact, although he may be unable to explain the phenomena. He perceives that moral causes induce disease, destroy life, retard recovery, and often interfere with the successful operation of the most powerful remedial means used for the alleviation of bodily suffering. Although such influences are admitted to play an important part, either for good or for evil, I do not conceive that, as physicians, we have a full appreciation of their great importance. In proportion as we recognise our psychological character and position, and estimate the effect of those spiritual agents which the cultivated and expanded mind is capable of wielding, shall we be successful at the bedside of our patients, elevate ourselves, and not only deserve, but command, the respect of the public, and place our science upon the highest vantage-ground of which it is susceptible. How shall we be able to influence the minds of others if we have no knowledge of the constitution and operation of our own understandings? As well might the physician administer, for the relief of acute suffering, a material agent of whose properties and mode of action he is avowedly ignorant.

> "He that would govern others first should be
> The master of himself, richly endued
> With depth of understanding, height of knowledge."
>
> MASSINGER.

Referring generally to the present aspect of that branch of philosophy whose claims I am now advocating, I would, *in limine*, observe, that the advancement of mental science has of late years been greatly retarded by the prejudices which have prevailed in reference to all abstract metaphysical investigations. An impression has existed, that this branch of inquiry unfitted the mind for the contemplation of those subjects more immediately associated with the useful and practical affairs of every-day life; that the researches of metaphysicians served only to darken and bewilder the understanding, and to teach the use of pedantic jargon, and of obscure and transcendental phraseology. Hence arose the sarcasm, that to recommend a person to study metaphysics was a delicate mode of suggesting the propriety of confining him in a lunatic asylum. "I am the person you wish to see," said the illustrious Plato to his foreign guests, who desired an introduction to the grave philosopher, under the impression that they were to see a man exhibiting qualities very different from those possessed by ordinary mortals. Does, I would ask, the mind grow severe in proportion to its enlightenment? Why should a knowledge of the most exalted department of philosophy unfit us for the active pursuits of life, or for the society of mankind? Need we feel surprise at the attempts which have been made, in the present utilitarian age, to depreciate the study of metaphysical philosophy, when we recur to the history of the science? The modern metaphysician is engaged in more useful and loftier speculations than that of considering whether the *essence* of mind is distinct from its *existence*, and what are the qualities inherent in it as a nonenity? Whether angels passed from one point of space to another without passing through the intermediate points? Whether they can visually discern objects in the dark? Whether more than one angel can exist at the same moment in the same physical point? Whether they can exist in a perfect vacuum, with any relation to the absolute incorporeal void? Whether, if an angel were *in vacuo*, the void could still be termed perfect? These, and similarly abstruse and absurd speculations seriously occupied the patient attention of the learned schoolmen and theologians of former times, and gave rise to the idea of the science of metaphysics being the art of talking grave nonsense upon subjects beyond the limits of the human understanding. We are not justified, however, in any wholesale condemnation of these apparently profitless and Quixotic speculations. May we not use the language of the founder of the Inductive Philosophy, and say of the ancient schoolmen, that "in seeking for brilliant impossibilities they sometimes discovered useful realities."

Bacon, when referring to the researches of the alchemists for the philosopher's stone, says, that they performed the office of the husbandman, who, in seeking for a hidden treasure, turned up the soil, and pulverized the earth, thereby rendering it better fitted for the purposes of vegetation. Although the schoolmen were baffled in their attempts to discover the essence of the soul, and to ascertain with any degree of satisfaction to their own minds the precise number of angelic spirits who could *pirouette* at the same instant upon the point of a needle, they, nevertheless, opened a path for the philosopher, amidst the dreary forest which he had to traverse, and pointed out to him the dangerous portions of his journey, against which they themselves had stumbled and fallen.

Modern Metaphysics, and its sister science, Theology, hold the same relations to the rhapsodies of the schoolmen as modern chemistry does to the speculations of the alchemist. No right-thinking men would repudiate the study of modern chemistry on account of the obscure and apparently profitless researches of the alchemists: by parity of reasoning, are we justified in denouncing the serious and patient study of mental philosophy, on account of scholastic jargon, nonentities, unmeaning generalities, and inanities, of the ancient metaphysicians?

In forming an estimate of the value of any given branch of philosophical study, we must be cautions how we apply the interrogatory, *cui bono?*—neither must we adopt as our standard of excellence the mathematician, who, refusing to admit that any advantages could result from the pursuit of a branch of science not directly related to his own favourite study, exclaimed, when recommended to read Milton's "Paradise Lost," "What does it prove?" Are the lofty emotions, the glorious imagery, the sublime speculations, the melodies that have charmed our ear, elevated our thoughts, improved our hearts, ennobled our nature, purified our manners, and thrown a ray of sunshine over the dreary path of life, to be dismissed from our contemplation because they have no obvious and direct relationship to the practical business of life? Let us not join in the vulgar tirade against those ennobling pursuits having no apparent or direct association with the science of medicine, which constitute the charm and poetry of life, and have powerful indirect effects upon the intellectual progress of nations, the civilization of the world, and the character and happiness of man.

> "———Desolater! who shall say
> Of what thy rashness may have reft mankind?
> Take the sweet poetry of life away,
> And what remains behind?"

It has been eloquently and truly observed by Goëthe, when referring to the healthful influences of imaginative literature upon the heart and intellect, "When the man of the world is devoting his days to wasting melancholy for some deep disappointment, or in the ebullience of joy is going out to meet his happy destiny, the lightly-moved and all-conceiving spirit of the poet steps forth to be the *sun* from night to day, and, with soft transitions, tunes his harp to joy or woe. From his heart, its native soil, springs up the lovely flower of wisdom; and if others, while waking, dream, and are pained with fantastic delusions from their every sense, he passes the dream of life like one awake, and the strangest incidents are to him a part both of the past and of the future. And thus the poet is at once a teacher, a prophet, and a friend of gods and men. At the courts of kings, at the tables of the great, beneath the windows of the fair, the sound of the poet was heard, when the ear and soul were shut to all beside; and men felt as we do when delight comes over us, and we stop with rapture, if, among dingles we are crossing, the voice of the nightingale starts out touching and strong. The poets found a home in every habitation of the world, and the lowliness of their position exalted them the more. The hero listened to their songs, and the conqueror of the earth did reverence to the poet, for he felt that without poets his own wild and vast existence would pass away and be forgotten for ever."*

Would that I could, in equally lofty and touching eloquence, impress upon others the conception which I myself have formed of the value—the practical importance—to the physician, of a more general acquaintance with those branches of polite literature which serve to chasten the taste, discipline the mind, develope holy aspirations after truth, invigorate the understanding, improve the heart, and keep in abeyance those corroding emotions which often embitter our existence, engender disease, and shorten the duration of human existence. The science of mind has been truly designated *the science of ourselves*, of all that surrounds us, of everything which we enjoy and suffer, or hope and fear; so truly the science of our very being, that it would be impossible for us to look back on the feelings of a single hour without constantly retracing phenomena that have been there, to a certain extent, the subject of our analysis and arrangement. The thoughts and faculties of our intellectual frame, and all which we admire as wonderful in the genius of others; the moral obligation which, as obeyed or violated, is ever felt by us with delight or with remorse; the virtues of which we think as often as we think of those whom we love, and the vices we ever view with abhorrence or with pity; the traces of divine goodness, which never can be absent from our view, because there is no object in nature which does not exhibit them; the feeling of our dependence upon the gracious power that formed us; and the anticipation of the state of existence more lasting than that which is measured by the few beatings of our feeble pulse,—these, in their perpetual recurrence, impress upon us the vast importance of a knowledge of the philosophy of the human mind.*

When referring to the influence of such studies upon the mind, Burke eloquently and justly observes, that, "whatever progress may be made towards the discovery of truth in this manner, we shall not repent the pains we have taken in it. The use of such inquiries is considerable. Whatever turns the soul inward on itself tends to concentrate its forces, and to fit it for the greater and more exalted flights of science. If we can direct the light we derive from such lofty speculations upon the humbler field of the imagination, whilst we investigate the springs and trace the sources of our passions, we may not only communicate to the taste a sort of philosophical dignity, but we may reflect back, on the severer sciences, some of the graces and elegancies of taste, without which the greatest proficiency in those sciences will always have the appearance of something illiberal." This branch of science, apart altogether from its direct utility, has other great and indirect advantages, which, in the absence of more conclusive recommendations in its favour, ought to demonstrate to us the importance and value of a knowledge of our own mental constitution. The discipline—the training—which the mind undergoes in the study of its own operations, is of itself an advantage not lightly to be appreciated. The cultivation of habits of accurate observation and reflection, of patient attention, of rigid induction, of logical ratiocination, adapts the mind for the more ready pursuits of those sciences which are associated with other branches of knowledge, supposed to be more connected with the practical and active business of life. The mental *gymnasium* to which I refer is admirably fitted for the development, expansion, and cultivation of those faculties of the mind upon the right exercise of which depends our intellectual advancement and happiness.

It is not my wish, in advocating the claims of mental philosophy, to undervalue those sections of knowledge which have an almost exclusive reference to the physical sciences. I am quite disposed, however, to admit that it is an unfortunate effect of mere physicial inquiry, when exclusively directed to the properties of external things, to render the mind in our imagination subordinate to the objects to which it is directed; the faculties are nothing, the objects are everything. The very nature of such inquiry leads us perpetually without to observe and arrange, and nothing brings us back to the observer and arranger within; or if we do occasionally cast an inquisitive glance on the phenomena of our thought, we bring back with us what Bacon, in his nervous language, calls the "*smoke and tarnish of the furnace.*" The mind seems to be broken down to the littleness of the objects which it has been habitually contemplating; and we regard the faculties that measure earth and heaven, and that add infinity to infinity, with a curiosity of no greater interest than that with which we investigate the angles of a crystal, or the fructification of a moss. Such are represented by a philosopher* of high standing, as the inevitable consequences of a too exclusive devotion to the study of mere physical phenomena. But I would advance a step further, and maintain that a knowledge of the philosophy of the human mind is indispensable to the successful prosecution of physical science; that without a knowledge of mental phenomena, a high degree of perfection and accuracy could not be attained in any of the collateral branches of knowledge.

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* Wilhelm Meister.

* Browne.

I cannot dismiss this part of my subject without directing your attention to another branch of philosophical study intimately associated with the science of mind, and one most essential to the education of the psychological physician. I allude to *logic*, or the art of reasoning. Need I advance an argument, and establish the importance of a more extended knowledge of that science which analyzes the operations of the human understanding in the pursuit of truth. Mr. Mill places this science upon its right basis, when he argues that logic is not (as some maintain) the science of *belief*, but of *proof* or *evidence*. Its object is not to teach the physician what the symptoms are which indicate disease: these he must acquire from his own experience and observation, or from that of others. But logic sits in judgment on the sufficiency of that observation and experience to justify his rules, and on the sufficiency of his rules to justify his conduct. It does not give him proofs, but teaches him what makes them proofs, and how he is to judge of them. Logic can never show that the fact A proves the fact B, but it can point out to what conditions all facts must conform, in order that they may prove other facts. "It is," says Mr. Mill, "to use the words of Bacon, the *ars artium*, the science of science itself. All science consists of *data*, and of conclusions from these *data*, of proofs, and what they prove. Now, logic points out what relations must subsist between data and whatever can be concluded from them; between proof and anything which it can prove." It is not sufficient to establish that a knowledge, a technical knowledge, of the process of reasoning, an apt appreciation of the use and application of recognised logical formulæ, is not actually necessary to enable a person to reason rightly, in order to prove that an acquaintance with the science is not indispensable to the physician. It is true, as Dr. Gregory observes, that a sailor may navigate a ship, who is ignorant of the principles of navigation, and a person may construct a dial, who knows nothing of the principles of astronomy, spherical trigonometry, or the projection of the sphere. Extensive experience, a natural quickness of apprehension, an intuitive perception of the relationship between phenomena, a capability of ready generalization, often make a man a good practical logician who has no knowledge of a syllogism, or of the elements of logical science. Among the higher order of practical intellects there have been many of whom it was remarked, "how admirably they suited their means to an end, without being able to give any sufficient reason for what they do, and apply, or seem to apply, recondite principles which they are wholly unable to state."

But as medical philosophers, we must not be satisfied with this natural aptitude or intuitive perception of the principles of logical science. The art of medicine is inductive in its character, that is, the theories upon which it is founded originate in the process of collecting general truths from particular observed facts, which process is termed induction, or ascertaining the generalization of a fact. Now, it must be admitted that our science peculiarly exposes its cultivators to the danger of arriving at hasty conclusions from the consideration of a few particulars. We have to deal with the phenomena of life, of which our knowledge is extremely circumscribed, and with those deviations from its normal condition termed disease. How necessary it is for the mind of the physician to be well trained to habits of close reasoning and careful induction. It is on this account that logic should form a part of the curriculum of our medical schools.

In analyzing the anatomy of the passions, it is our duty, to ascertain, if possible, the nature of that mysterious union existing between certain emotions of the mind and particular organic tissues. Why should, for illustration, the passion of fear specially affect the heart, and, if of long continuance, induce actual physical changes in the centre of the circulation? and how can it be explained that in certain diseases of the heart the patient often manifests a morbid apprehension of some approaching calamity? Again, it is for a medical psychologist to ascertain the *modus operandi* of the passion of anger upon the hepatic secretion, and the re-action of disease of the liver upon the irascible temperament. How does fear induce diarrhœa, and predispose the system so readily to the action of contagion? Again, may it not be possible to elucidate the action of terror in suddenly arresting hæmorrhage; of the apprehension of threatened disgrace in checking attacks of convulsive disease arising from a morbid principle of imitation, and arresting the progress of epidemic suicide. The emotion of hope is known specifically to influence the respiratory functions, and in the last stages of pulmonary disease, the patient is often buoyed up, almost within the arms of death, with the certain expectation of recovery. "How frequently," says Sir Henry Halford, "have we seen the delicate female, in the last stage of pulmonary consumption, lighted up, and everything assume a bright and cheerful aspect about her. New schemes of happiness have been contemplated, new dresses prepared, and everything was brilliant in her prospects, whilst her parents lived under the greatest apprehension and solicitude, the physician seeing nothing but inevitable fate for the poor victim whose distemper has deluded her."

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* Browne.

In endeavouring to solve these and other subtle points in psychology, we must be prepared to encounter the ridicule and opposition of those who denounce all such speculations as futile and presumptuous. In our patient, persevering pursuit after abstract philosophical truth, we must not be discouraged by such indifference and opposition. It may be legitimately within the compass of the metaphysician, aided by the discoveries of physiological and other kindred sciences, to unravel the nature of that mysterious union existing between mind and matter; and to point out to us the origin and source of the emotions, and the mode in which spirit and matter reciprocally act upon each other. The man devoted to the discovery of these great truths may be compelled to resign himself to the neglect and contumely of his contemporaries. Such, alas! has too often been the fate of those great and noble spirits who have shed undying lustre on the land which gave them birth, and the record of whose deeds forms the brightest spot in our country's annals. It is the recollection of the history of such martyrs to science as Harvey and Jenner, which induces us to exclaim with Coleridge, "Monsters and madmen are canonized, whilst Galileo is buried in a dungeon." A Brahmin crushed with a stone the microscope that first developed to his vision living things among the vegetables of his daily food. Professor Sedgwick, when referring to this fact, observes, "The spirit of the Brahmin lives in Christendom. The bad principles of our nature are not bounded by *caste* or *climate*, and men are still to be found, who, if not restrained by the wise and humane laws of their country, would try to stifle by personal violence, and crush by brutal force, any truth not hatched by their own conceit, and confined within the narrow fences of their own ignorance."

In analyzing the nature of the passions, ascertaining their connexion with each other, mode of action upon the system, and special relationship to certain organic tissues, it is necessary to recollect that they are planted in us for wise, benevolent, and noble purposes; and it is only when they are abused, and not subjected to a healthy discipline, that they induce disease, and affect the duration of life. While the impressions made upon the nervous system are moderate, and restrained within due bounds—when there is a natural gratification of the passions, guided and ennobled by reason, the effect produced upon the system is rather of a beneficial than of a pernicious nature. The "passions are, in morals," says Sydney Smith, "what motion is in physics: they create, preserve, and animate; and without them all would be silence and death. Avarice guides men across the deserts of the ocean; pride covers the earth with trophies, mausoleums, and pyramids; love turns men from their savage rudeness; ambition shakes the very foundation of kingdoms. By the love of glory, weak nations swell into magnitude and strength. Whatever there is of terrible, whatever there is of beautiful in human events, all that shakes the soul to and fro, and is remembered while thought and flesh cling together,—all these have their origin in the passions. As it is only in storms, and when their coming waters are driven up into the air, that we catch a glimpse of the depths of the ocean, so it is only in the season of perturbation that we have a glimpse of the real internal nature of man. It is then only that the might of these eruptions, shaking his frame, dissipate all the feeble coverings of opinion, and rend in pieces that cobweb veil with which fashion hides the feelings of the heart. It is then only that Nature speaks her genuine feelings; and, as at the last night of Troy, when Venus illumined the darkness, Æneas saw the gods themselves at work, so may we, when the blaze of passion is flung upon man's nature, mark in him the signs of a celestial origin, and tremble at the invisible agent of God."

"Who that would ask a heart to dulness wed,
The waveless calm, the slumber of the dead?"
CAMPBELL.

Having, I trust, satisfactorily established the necessity of a more general acquaintance with mental philosophy, it is now my province to demonstrate its practical application, as a therapeutic agent, in the hands of the physician.

(To be continued.)

M. CHOMEL AND THE FRENCH GOVERNMENT.—*(From a Correspondent.)*—Amidst the wholesale swearing of fidelity to the new constitution of France and the Prince President, now exacted by the present despotic government from every kind of functionary, it is exceedingly gratifying to find that many of the most eminent men throughout the country have refused taking the oath to such incarnations of tyranny. Besides Arago, Cavaignac, Barrot, Changarnier, and a host of other most distinguished individuals who come within that category, Chomel, the celebrated physician and an able professor in the faculty of medicine at Paris, also constitutes one of the noble army of martyrs to principle and independence, rather than degrade themselves by acknowledging a power they ignore. M. Chomel has resigned his chair, to preserve freedom of opinion and public integrity. Such conduct is worthy of praise; and many friends and former pupils, in England and France, will honour him for setting so good an example to his countrymen.

Lectures
ON
SOME OF THE MORE IMPORTANT POINTS IN SURGERY.

By G. J. GUTHRIE, Esq., F.R.S.

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LECTURE V.

65. Amputation of a limb is the last resource and the opprobrium of surgery, as death is of the practice of physic. It being notwithstanding impossible to do impossibilities, and save a limb or a life which can no longer be preserved. Art and science at that point cease to be useful.

66. At the commencement of the war in the Peninsula, all surgeons believed it to be impossible to compress in an effective manner the artery of the thigh against the bone, as it passes over the edge of the pubis, and that the loss of blood on its division must be so formidable as to be murderous. This was merely a surgical delusion, which maintained its ground in London until the end of 1815, when the French soldier was shown to all disbelievers, whose thigh had been successfully taken off at the hip-joint, after the battle of Waterloo, without first tying the femoral artery. It was the great point of advance in English and European surgery, and one great result of the practice of that war.

67. This great, indeed most important fact, being established, the surgery of amputation was deprived of nearly all its terrors. Confidence, and with it coolness, was obtained, and many young surgeons diligently sought for an operation on the hip-joint as the *ne plus ultra* of operative, boldness and dexterity, much after the fashion of the young lady *pianistes*, who do not consider themselves in any way advanced on the road to perfection, until they can play at least the Overture to *Guillaume Tell*, if not the Galop Chromatique of Listz, nearly as well as himself.

68. As a tourniquet cannot be applied in this amputation, nor even at that of the shoulder-joint, without doing harm, its inutility, is proved in the greatest operations; and recourse should not be had to it in the smaller or less dangerous ones, provided sufficient assistance can be obtained. When the surgeon has only one assistant, he should apply a tourniquet; or even if he should have several bad ones on whom he cannot depend.

69. There is always more blood lost, and particularly in secondary amputations, when a tourniquet is used, than when the principal artery is compressed by one assistant, and two others are ready to press on the outside of the flaps, or upon the divided vessels, with the ends of their fingers; the force necessary to prevent the passage of blood through the common femoral, or the axillary artery, being merely that of the finger and thumb, applied in a very gentle manner, or even of the end of the fore-finger of a competent person. I have rarely applied a tourniquet since 1812, and few persons have done more formidable operations under more difficult circumstances. The ancient illusion with regard to the necessity for tourniquets in amputation, must be given up, except by incompetent persons, or by those who are fearful and superstitious, and do not like to depart from the ways of their fore-fathers

70. A tourniquet is useful when loosely applied after an operation, and the attendant should be taught how to turn it, so as to suppress any serious bleeding which may take place until the surgeon can be procured. It may be, although it rarely is, necessary on the field of battle. The surgeon need not, therefore, load himself or his assistant, as formerly, with a sackful, for a thoroughly useful tourniquet can be made in a moment with a pebble and a pocket-handkerchief, or a roller. The great point is to know where and how to apply it. When gentlemen called surgeons by warrant are sent to an army, as many were to that in Spain and France, with only the knowledge of a druggist, having been refused a commission on account of their ignorance, it is necessary this instruction should be especially given to them; and this horrible fact is recorded with the hope it may be useful in preventing any such atrocious proceedings in future. Peace, or Humane Societies, if they cannot prevent a war, may interfere with advantage on this point, to divest it of some of its horrors.

71. When circular operations were performed in the olden time, and particularly on the thigh, the skin, when divided, was dissected, and turned up like the cuff of a coat—a painful proceeding, as unnecessary as it was barbarous. Forty years have elapsed since I demonstrated its absurdity, and showed that the first incision in the thigh should include the fascia lata, and any deep attachments it might have, when the parts thus divided ought to be retracted as a whole, to form a proper covering for the stump.

It was at the same time shown, that in whatever way, and however clumsily and tediously, the muscles might be divided, it did not prevent the successful result of the operation, provided the bone was cut short, so as to form a cone, with an elongated or depressed point.

72. The nicking of the periosteum, and pushing it upwards and downwards, so as to leave a space for the saw was at the same time forbidden, as leading to necrosis of the part of the bone thus denuded, if unremoved by the saw. The saw was also directed to be held perpendicularly to, and not across, the bone, nor even diagonally to it—an apparently trivial, but yet great improvement. The last part divided is an outer and thin layer of hard bone, which does not so readily splinter on the side as on the under part, by the weight of the leg.

73. The limb to be amputated is not to be held by the assistant in the manner described and usually shown in books; one hand ought not to be above the knee, but below and by the side of it, the other grasping the calf, so that the limb

may be duly supported, and drawn inwards or outwards, in the opposite direction to the saw, as it divides the last layers of the bone.

74. The common integuments of the stump should be drawn together, in primary amputations, by sutures formed of flexible leaden wires; by threads of silk, if leaden wires are not attainable. The vessels which bleed should be carefully secured by single yet fine threads of dentists' or other strong silk, one end to be cut off, in primary amputations. In secondary amputations, when the parts are not sound, both ends of the ligature should be cut off; and in such cases, the edges of the wound should be only brought together, without the expectation or the desire for union taking place.

75. The removal of a limb should not occupy two minutes, but the securing of the bloodvessels should be done without reference to time; when carefully effected, there is little fear of secondary bleeding, and the stump should be closed at once. It has been lately recommended not to close the stump for four, six, or eight hours after the operation; but this is not advisable, unless the depressed state of the patient, or other causes, should have rendered it impossible to secure, in a proper manner, all the vessels which are likely to bleed. It will be less painful and dangerous to delay, in such cases, than to have to re-open the stump.

76. When the edges of the incision have been brought together by the hands of the assistants, and by the sutures indicated, strips of some kind of adhesive plaster should be applied between them, and a little wet lint over the incision, retained by two cross-pieces of rollers, the ends of which are maintained in their situation by another roller applied round the body and over the upper part of the thigh, including the extremities of the two cross-pieces; but this roller is not to be applied over the end of the stump. When the war came well in, stump-caps as they were called, went out, being worse than useless. The stump should be supported on a soft pillow, so as to be as comfortable as possible, and protected by a cradle from accidental injury.

If inflammation, accompanied by pain, should take place, cold or iced water should be applied, particularly in primay amputations. In secondary ones, a light warm poultice will be more advantageous, all constriction by sutures or plasters being removed, the parts being simply approximated to each other. Attention should be paid to the directions in aphorism 61.

Amputation at the Hip-joint.

77. This amputation essentially owes its existence to the wars of the French Revolution. M. Bourgery says Blandin performed it three times in 1794; once successfully. The Baron Larrey did it seven times during his different campaigns, and he says one or two persons were seen by an officer in Russian Poland, who had survived, but they never reached France. Nevertheless, I always assume that one at least did recover, whether he was really seen or not, being a compliment and a reward justly due to the zeal and ability of my old friend the Baron, to whom the surgery of France is so much indebted. This operation was first done in Spain by the late Mr. Brownrigg, at Elvas, in 1811, and by myself after the siege of Ciudad Rodrigo, but none of our patients ultimately recovered. I operated on a French soldier at Brussels soon after the receipt of the injury at Waterloo, who survived; and he was the first and the *only man* seen for a long time afterwards in either London or Paris. The biographer of the Baron Larrey says he was present at, and advised the operation to be done, which is an error, as the Baron did not visit Brussels until after I had left it for Antwerp; neither had I any knowledge of the Barons' writings in 1811 or 1812, when my first operation was done in Portugal. Eighteen or twenty ways have been suggested of doing this operation, and twenty persons are believed to have survived its performance, several of whom may be living at the present time.

A very extensive destruction of the soft parts, the femur remaining entire, does not authorize the removal of the limb in the first instance, unless the main artery is also injured. Captain Flack, of the 88th Regiment, was struck by a large cannot-shot at Ciudad Rodrigo, on the outside and anterior part of the left thigh, which tore up and carried away nearly all the soft parts from the groin or bend of the thigh, below Poupart's ligament, to within a hand's-breadth of the knee. It was an awful affair. He was supposed to be dying, was returned dead, and his commission was given to another. Left to die in the field hospital after the town was stormed, and finding himself thus deserted by his own friends, he claimed my aid as a stranger. I took him five leagues to my hospital at Aldea del Obispo. The femoral artery lay bare for the space of near four inches, in a channel at the bottom of the wound; the whole however gradually closed in, and he recovered.

If the injury is on the back part, a flap should be made in amputation from the fore part. If the wound should be on the outside, the flap is to be made from the inside, and *vice versâ*, the object being to make the stump as long as possible. A wound of the artery, accompanied by a fracture of the femur, requires amputation, for although many would survive either injury alone, none would, it may be apprehended, surmount both united.

If after a fracture in course of treatment, the principal artery should be wounded by some accidental motion of the bone, amputation should in general be resorted to. A ligature on the artery higher up would fail, and the operation of seeking for both ends of the injured vessel would cause so much mischief in an unsound part, that the consequence would in all probability be fatal.

78. When the femur is suffering from a malignant disease, commencing in the periosteum, or its cancellated internal structure, I am reluctantly obliged to say that the removal of the whole bone at the hip-joint offers the best, perhaps the only,

chance of success. In such cases, the operator has in general the power of selecting his mode of proceeding.

It may be laid down as a principle in all cases of accident, whether from shot, shell, or railway-carriages, that no man should suffer amputation at the hip-joint when the thigh bone is entire. It should never be done in cases of injury when the bone can be sawn immediately below the trochanter major, and sufficient flaps can be preserved to close the wound thus made. An injury warranting this operation should extend to the neck or head of the bone, and it may be possible, as I have proposed, even then to avoid it by removing the broken parts.

79. The principle being established, as a general rule, in all cases of recent injury, that the femur must be broken at least as high as the trochanter to constitute an imperative case for this operation, the next point of importance relates to the manner of forming the first incisions. The instructions and recommendations to be found in books for the performance of this operation are frequently inapplicable, and are not to be depended upon; the errors occurring from the operation having been considered and performed on the dead body and not on the living, on the normal and not on the injured state of parts. Thus, for instance, it is recommended that an assistant should rotate the knee outwards or inwards, to show the head of the femur; to which recommendation there is the insuperable objection, that no person should suffer this operation who has a knee, or half a thigh, or even a third of one, to move by the rotary process. Pure theorists in surgery have decided upon having a large flap made on the fore part of the thigh, and a smaller one behind, regardless of the fact that this cannot be done in many cases requiring a primary operation from the nature of the injury, although it may be done in many secondary cases, in which this severe operation would not have been required if the limb had been amputated in the first instance. It is the mode recommended by Mr. Brownrigg, who in his operations, which were secondary ones, had a choice of integument, and is perhaps, under these circumstances, the best.

The Baron Larrey tied the femoral artery in the first instance, and then made two lateral flaps; but this operation, dependent on the fear of hæmorrhage, was never performed in the British army.

80. My first successful operation, performed in 1815, was done from without inwards, the flaps being anterior and posterior, the artery being compressed against the pubis.

The patient is to be laid on a low table, or other convenient thing, in a horizontal position; an assistant standing behind and leaning over, compresses the external iliac artery, becoming femoral as it passes over the edge of the pubis. The surgeon, standing on the inside, commences his first incision some three or four inches directly below the anterior spinous process of the ilium, carries it across the thigh through the integuments, inwards and backwards, in an oblique direction, at an equal distance from the tuberosity of the ischium to nearly opposite to the spot where the incision commenced; the end of this incision is then to be carried upwards with a gentle curve behind the trochanter, until it meets with the commencement of the first; the second incision being about or rather less than one-third the length of the first. The integuments, including the fascia, being retracted, the three glutæal muscles are to be cut through to the bone. The knife being then placed close to the retracted integuments, cuts steadily through everything on the anterior part and inside of the thigh. The femoral or other large artery may then be drawn out by a tenaculum or spring-forceps, and tied. The capsular ligament being well opened, and the ligamentum teres divided, the knife should be passed behind the head of the bone thus dislocated, and made to cut its way out, care being taken not to have too large a quantity of muscle on the under part, or the integuments will not cover the wound, under which circumstance a sufficient portion of muscular fibre must be cut away. The obturatrix, glutæal, and ischiatic arteries are not to be feared, being each readily compressed by a finger until they can be duly secured. The capsular ligament, and as much of the ligamentous edge of the acetabulum as can be readily cut off, should be removed. The nerves, if long, are to be cut short. The wound is then to be carefully cleaned, and brought together by three or more soft leaden sutures in a line from the spine of the ilium towards the tuberosity of the ischium. The ligatures are to be brought out between the sutures and the adhesive strips of plaster assisting them; a little wet lint is to be placed over the wound, and some well-adapted compress under the lower flap: the whole to be retained by a soft bandage. In my successful case there was a shot-hole in the under flap, which did good service; and from seeing its use, I have no objection to a small perpendicular slit being made in the lower flap, and a strip of linen introduced to prevent adhesion, as the immediate union of the flaps cannot be expected, nor is it often to be desired.

This mode of proceeding is more certain of making good flaps where integuments are scarce. Where the integuments will admit of the anterior flap being made by the sharp-pointed puncturing knife dividing the parts after it has been passed across from within outwards, there is no objection, and it may be preferred. I have had two added to each of the cases of instruments supplied to the army for the purpose.

Professor Langenbeck, when lately in London informed me he had performed amputation at the hip-joint, in the Holstein war, several times and he believed more than once successfully making the anterior flap by the pointed knife cutting from within outwards, but the posterio one by cutting through the integuments from without inwards, as I have recommended, in orde to make it of a more equal and proper thicknes One point to be attended to is to leave as littl as possible of the internal tendinous structure of the great glutæus muscle, which does not readily unite with other parts; a second, not to leave too much muscle behind; and a third, to remove as much as possible of the ligamentous structure about the joint. The after treatment will be the same as in other formidable cases. The shock, however, of the injury, and of the amputation, will rarely render bloodletting necessary. Cordials, in small quantities, with opiates and a light nourishing diet, should be given. The wound should be wetted with cold water, and the patient constantly watched.

Mr. Brownrigg's operation is to be done in the following manner:—The patient is to be placed on a low table and properly secured, with the nates projecting over its edge, the artery being compressed; the surgeon enters the pointed knife between the spine of the ilium and the trochanter major, and carries it across the thigh, as near as may be to the head and neck of the femur, until the point appears on the inside, near the scrotum, which should have previously been drawn away. The knife is to cut slowly downwards, to make a flap, under which, and behind the knife, an assistant inserts his four fingers, in order to be able to grasp the flap and aid in compressing the principal artery, as the operator completes the flap, which it is intended should be a large one, as shown in the diagram.

The assistant holding up the flap, the surgeon cuts through the attachment of the glutæus medius muscle, if it has not been done, opens the capsular ligament of the joint, and cuts through the ligamentum teres. The head of the bone can now be readily withdrawn from the acetabulum. The knife is then to be placed behind the head of the bone and the trochanter, and carried obliquely downwards and backwards, so as to form a shorter flap behind than has been made before.

81. Amputation by the circular incision is to be done in the following manner:—When a tourniquet is used, the pad should be firm and narrow, and carefully held directly over the artery, while the ends of the bandage in which it is contained are pinned together. The strap of the tourniquet is then to be put round the limb, the instrument itself being directly over the pad, with the screw entirely free; the strap is then to be drawn tight, and buckled on the outside, so as to prevent its slipping, and yet not interfering with the screw. Should the screw require to be turned more than half its number of turns, the strap is not sufficiently tight, or the pad has not been well applied. The patient being placed on a table at a convenient height, the assistants are carefully to retract the integuments upwards, and put them on the stretch downwards, by which means their division is more easily and regularly accomplished. The surgeon, standing on the outside, passes his hand under the thigh, and round above quite to the outside, and there he begins his incision with the heel of the knife, and with a quick, steady movement, carries it round the thigh until the circular division of the skin, cellular membrane, and fascia is completed. The skin cannot be sufficiently retracted unless the fascia be divided, and as the division of the skin is certainly the most painful part of the operation, it ought never to be done by two incisions, when the largest thigh can most readily and speedily be encircled by one. If the fascia should not be completely divided by the first circular incision, it is to be cut with the point of the knife, together with any attachment to the bone or muscles beneath. The amputating knife is then to be applied close to the retracted fascia and integuments, and the outermost muscles are to be divided by a circular incision, with any portion of the fascia that may not have equally retracted. This incision completed, the knife is immediately to be placed close to the edge of the muscular fibres which have retracted, and the remainder of the soft parts divided to the bone in the same manner. In making these two incisions, care should be taken to cut at least half an inch on each side of the great artery by one incision, which should be either the first or second, as may be most convenient. The muscles attached to the bone are to be then separated with a scalpel for about three inches in large thighs, by which means the bone will be fairly imbedded when sawed off. The common linen retractor is now to be placed on the limb, and the muscles steadily kept back while the bone is sawed through. The periosteum is to be divided by one circular cut of the scalpel, after the retractor is put on. The heel of the saw is then to be applied, and drawn towards the surgeon so as to mark the bone, in which furrow he will continue to cut with long and steady strokes, the point of the saw slanting downwards in a perpendicular direction until the bone be nearly divided, when the saw is to be more lightly pressed upon to avoid splintering it, which this manner of sawing will also tend to prevent. During this operation the thigh should be held steadily above, and in such a manner below that the part to be cut off does not weigh or drag on the bone above; at the same time it must not be pressed inwards or upwards, or it will prevent the motion of the saw, or splinter the bone. The retractor is to be removed, the great artery is to be pulled out by a tenaculum passed through its sides, separated a little from its attachment, and firmly tied with a two-threaded strong ligature, provided the dentists' silk is not used, and the tenaculum is not to be withdrawn until this is accomplished; any other vessels that show themselves may be secured, and compression should for an instant be taken off the main artery, when others will start. If used, the tourniquet should now be removed, and the small remaining vessels will be discovered. If the great vein continue to bleed after some pressure has been made upon it, a single-threaded ligature should be put over it; but this should not be done if it can be avoided, and only when the loss of a little blood might be dangerous. If the cancellated part of the bone should bleed freely, the thumb of the left hand pressed steadily upon it, whilst the vessels are tying, will in a short time suppress it. Any inequality of bone should be removed by forceps. The ligatures should now

be shortened, one end of each thread being cut off; the stump is to be sponged with cold water and dried; the bandage rolled steadily down the thigh; the muscles and integuments brought forward and placed in apposition, horizontally, across the face of the stump, and retained by leaden sutures and adhesive plasters carefully applied, from below upwards, and from above downwards; the ligatures being brought out nearly as straight as possible, in two or three places between the slips of plaster, unless both ends have been cut short. A compress of lint is to be placed over and under the wound, supported by two slips of bandage in the form of a Maltese cross, vertically and horizontally, and the whole secured by a few more turns of the bandage. No stump-cap is to be applied; the stump is to be raised a little on a proper pillow from the bed, in which the patient lies on his back; and if the bone appears to press too much against the upper flap, the body may be a little raised, which will relieve it.

In secondary amputation of the thigh, the integuments may not be sound, and will not retract, in which case they must be dissected back to an equal distance all round. If the muscles are much diminished in size, or flabby, they should be left even longer than may appear necessary for the formation of a good stump; and this is to be done more especially on the under part, for the bone will frequently protrude under these circumstances, when enough has been supposed to have been preserved. In all these cases the bone should be shorter than usual, and the skin should, if possible, retain its attachments to the parts beneath. No inconvenience can ever arise from too much muscle and skin in a circular stump; but it does sometimes from too much skin alone.

In primary operations there will be from three to seven vessels to be tied; in secondary ones, from ten to sixteen, and even then there may be an oozing from the stump. In this case a little delay in searching for the vessels is necessary; the tourniquet and all tight bandages should be removed, and the stump well sponged with cold water before it is dressed. A certain degree of oozing is to be expected from all stumps, although it does not always occur; but when there is really any hæmorrhage, so that blood distils freely through the dressings, the stump should be opened, when the bleeding vessel will generally be discovered readily, though not visible before. A stump under these circumstances should not be closed in the first instance; the parts should be merely approximated until all bleeding has ceased.

When the operation is performed near the knee, the gradual thickening of the thigh prevents the retractation of the integuments, and has an effect upon the vessels of the stump; both of which evils are avoided after the circular incision is completed, by making a cut, of an inch and a half in length, in the integuments through the fascia on each side, in the horizontal direction in which they are recommended to be placed, after the operation is finished; but this will very rarely be necessary.

82. Amputation of the thigh, by the flap operation, is best accomplished by the method adopted by Mr. Luke of the London Hospital, and which is as follows:—The patient being placed so that the thigh projects beyond the table, the surgeon stands with his left hand towards the body, or on the outside, when amputating the right, and on the inside, when amputating the left, thigh. The knife to be used ought to be narrow, pointed, and longer by two or three inches than the diameter of the thigh at the place of amputation. The point of the knife should be entered *mid*-distance between the anterior and posterior surfaces of the thigh, which may be effected with accuracy, if the eye is brought to a level with the thigh, when the middle point is easily determined. The posterior flap is to be formed first, by carrying the knife transversely through the thigh, so that its point shall come out on the opposite side, exactly midway between the anterior and posterior surfaces. In traversing the thigh, the knife should pass behind the bone, and will be more or less remote from it in different individuals, according to the greater or less development of the posterior muscles, when by cutting obliquely downwards, to the extent of from four to six inches, according to the thickness of the thigh, a posterior flap is formed, the anterior flap is effected, not by making a flap, but by commencing an incision through the integuments and muscles on the opposite side of the thigh to the surgeon, and at a little distance anterior to the extremity of the posterior flap. This incision is made from without inwards, through the integuments, so as to form an even curve, and without angular irregularity, over the thigh, to near the base of the posterior flap on the side on which the surgeon stands. The length of this flap is determined by that of the posterior. It will therefore vary from four to six inches, as before stated; and for its completion, will require a second or perhaps a third application of the knife. In the two flaps thus made, the division of almost all soft structures is included, a few only immediately surrounding the bone remaining uncut, These are to be divided by a circular sweep of the knife, at the part where it is intended to saw the bone; and in this way it is sufficiently denuded for the application of the saw. The flaps being held back by an assistant, the bone is to be sawn through in the usual way. In amputation of the lower part of the thigh it usually happens that the ischiatic nerve lies upon the surface of the posterior flap, and should be removed. It occasionally occurs, although not frequently, that the popliteal artery, at its commencement, is cut obliquely; but in amputations above the passage of the arterial trunk, through the tendon of the triceps, this does not take place, the division of the artery being usually included in the circular sweep made after the formation of the flaps. The divided arteries being carefully secured, the flaps are to be brought together and retained by three sutures passed through the integuments, at equal distances from each other, and from the extremity or base of the flaps. It appears to be a matter of considerable importance not only that their edges

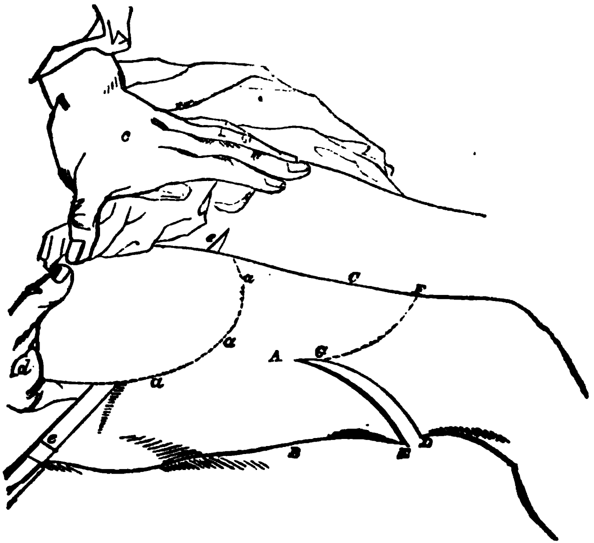
should be kept in apposition, but that their *whole surfaces* should be kept in accurate contact. For this purpose, the following method of dressing is adopted:—The edges, in the intervals between the sutures, are to be held together by strips of adhesive plaster about one inch in breadth. A compress of lint is then to be fitted over each flap—that upon the posterior flap being the larger. The compresses are to cover the flaps only, and not to extend over the extremity of the bone, where their pressure would probably be ill endured. The posterior compress is made large, that it may serve as a cushion on which the thigh rests when the patient is placed in bed. The compresses are to be retained in position by one or two strips of plaster, and supported by a bandage applied carefully around the stump. If this be properly accomplished, the whole surfaces of the flaps are kept accurately in contact with each other, and complete union may be reasonably expected. By securing the perfect apposition and support of the entire surfaces in accurate contact, the disposition to the issue of blood from small vessels is also obviated to a great extent; and it is even probable that vessels of a larger diameter than the smallest, which would bleed, if not restrained, are, by the pressure of the opposing surface, prevented from doing so, and the probability of secondary hæmorrhage is diminished. Experience has demonstrated the fact, that primary union of the flaps is most effectually secured in the great majority of amputations thus treated. Indeed, non-union of the flaps is the exception—union, the rule. In the subsequent treatment of the stump, care must be taken to prevent accumulation of discharge in the tracts of the ligatures; and the dressings must be renewed according to circumstances having reference to the quantity of discharge, and the uneasiness of the patient. The line of division of the integuments of the two flaps is situated, at first, in the centre of the face of the stump; but when the flaps have united, a gradual change takes place in the position of the cicatrix: it recedes by degrees, to the posterior aspect of the thigh, and the bone abuts upon the anterior flap, by which alone it is eventually covered, and the cicatrix is thus removed from its pressure. (See Fig. 1, lower figure.)

83. A protrusion of bone is a disagreeable occurrence after amputation; it will sometimes happen after sloughing of the stump, without any fault in the operator. If, on completing the operation, it is evident the bone cannot be well covered, a sufficient portion should be at once sawn off, and the error remedied.

When the bone protrudes at a subsequent period to the extent of an inch or more, it should be removed by operation, an incision being made on, and down to, the bone, and the saw applied where it is sound. The chain saw when at hand, answers well, and some should be supplied for the use of the principal hospitals with every army. The protruded end of bone should be held steadily by pincers, or it may be introduced into a hollow tube, which fixes it firmly.

When the bone is badly sawn through, or split in the act of dividing the last layer, or the periosteum is unduly separated, the end will often exfoliate with the split, which may extend up for three

FIG. 1.



Amputation of the Hip-joint as performed by Mr. BROWNRIGG.

(Upper figure.)

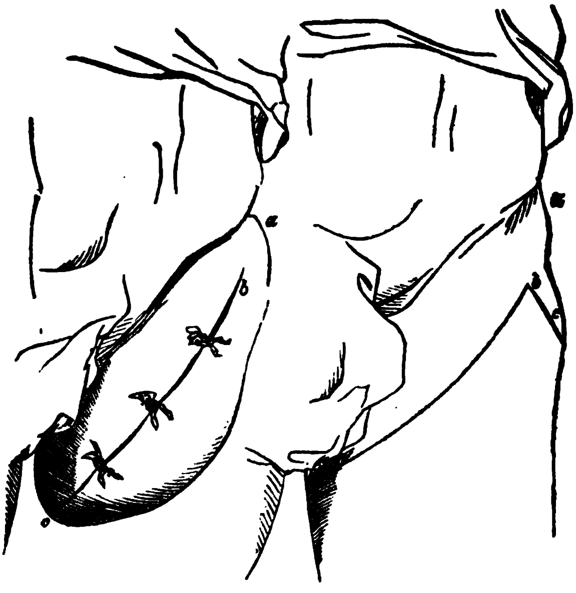
a, *a*, *a*, anterior flap in dotted lines; *c*, thumb compressing the artery on the pubis; *d*, fingers introduced under the flap; *e*, the straight knife, entrance and exit of.

(Lower figure.)

Flap Amputation as performed by Mr. LUKE, *on the lower half of the thigh.*

A, middle of the outside of the thigh and point of entrance of knife; *B*, under part; *C*, upper part; *A* to *E*, the under flap; *G* to *F*, dotted line of upper flap, beginning short of commencement of under flap.

FIG. 2.



MR. GUTHRIE'S OPERATION.

Left side.—*a*, Anterior superior spine of ilium; *b*, commencement of anterior incision, continued by the black line; *c*, the posterior incision joining the anterior one.

(Second figure.)

b, *c*, Line of incision marked by three sutures.

or more inches, causing much suffering, and occupying a great length of time before the stump becomes quite sound. A splinter of this kind may even require to be removed at a late or even distant period, from the nervous irritation and suffering it may occasion.

A Clinical Lecture
ON
DISEASE OF THE GLANDS OF THE NECK IN CHILDREN.

Delivered at St. Mary's Hospital.

By TYLER SMITH, M.D.,

PHYSICIAN-ACCOUCHEUR TO THE HOSPITAL.

Gentlemen,—Scrofula is a word creating as much uneasiness in families as any term which the whole nosology contains. Wherever it rests, a suspicion and dread of an ineradicable constitutional taint is conveyed. It becomes, therefore, of much importance that so serious a name should be used only with circumspection; and it would be a real service to show that many cases, commonly thus designated, are really instances of local disorder, which may occur without any distinctive state of the constitution.

The glands of the neck play a very important part in what is termed scrofulous disease. Suppuration of the glands in this region is one of the commonest forms in which this disease appears in children. You constantly see young children, who have been reduced in health, either by some previous disorder, bad diet, or unwholesome locality, with the racemiform glands of the neck enlarged and tender to the touch. Some of these may go on to suppuration; other glands in the vicinity are affected; glandular abscesses form in the axillæ; then the shoulder, elbow, or wrist joints become diseased, and the child becomes thoroughly scrofulous. But in the commencement of this series of events, which play the most important parts, local or constitutional causes? My own opinion is, that in many cases the local disorder chiefly, and in the first instance, arises from local and removable causes, and that it is does not depend upon any special constitutional taint. I proceed to explain the data upon which this opinion is founded.

Many theories have been advanced to account for the singular frequency with which the cervical glands are attacked, the knowledge of causes being ever the most important step towards the prevention or removal of diseases. By some it has been attributed to the greater delicacy of the skin of the neck and face, as compared with the rest of the body; others have referred it to the greater exposure of the neck to cold; but more commonly, it has been thought owing to eruptions of the scalp and soreness of the ears in children. The *rationale* has been that matter absorbed from the skin is carried by the lymphatics to the glands, which first irritate and then inflame, and lastly suppurate. No doubt, suppuration of the cervicle glands is sometimes produced in this way as a secondary consequence of skin disease, but this is by no means the rule in such cases.

The lymphatic vessels take their rise, among other tissues, from the skin and mucous membrane, but particularly from the latter. Different tracts of muscous membrane even have their different congeries of lymphatic vessels and glands, with which they are in intimate relation; as, for instance, the bronchial membrane and the bronchial glands, the urethra and the inguinal glands, the vagina and rectum, and the glands of the pelvis. In prolonged bronchial irritation we get enlargement of the bronchial glands. In urethral inflammation we have enlargement and suppuration of the inguinal glands; in irritation of the rectal and vaginal mucous surfaces, fistula or pelvic abscess from glandular inflammation and suppuration. Certain parts of the tegumentary surface are also in special relation with certain groups of glands, as, for instance, the skin of the upper extremity with the glands of the axilla, and the skin of the inferior extremity with the glands of the femoral region. It is quite unnecessary to do more than refer to the frequency with which injuries of the skin are followed by glandular suppuration in these situations.

Now, I am convinced by careful observation, that the mucous membrane of the mouth, nares, and fauces, is in especial relation with the great number of glands and lymphatic vessels studding every part of the subcutaneous surface of the neck, and I am equally convinced that in the great majority of cases of enlarged cervical glands, the source of the disease exists in the neighbouring mucous membrane. Some irritation is present in the mucous surface, which affects the lymphatic vessels, and these propagate it to the glands, the glands inflame, pus is formed, the skin gives way, and the unhappy child is said to be the subject of a scrofulous sore. The scar is indelible, and ever afterwards the suspicion of scrofula is preserved.

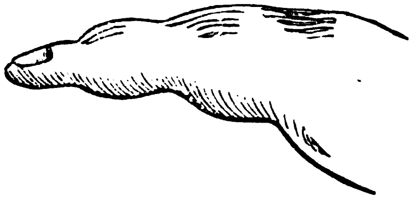
We see the influence of irritation of the mouth and fauces in producing enlargement of the cervical glands in its most marked degree in scarlatinous and other forms of sore-throat. We see it also in the irritation of the mucous membrane in measles, dentition, salivation, aphthæ, carious teeth, canker, disease of the gums, enlarged tonsils, common catarrh, a thickened state of the nostrils and Schneiderian membrane, thrush, and other affections to which this important division of the mucous membranes is subject. When there is a depraved state of the constitution, scrofula breaks out in different organs simultaneously; but when we see a local origin producing strictly local disturbance, and spreading only from point to point around the first disorder, I submit that we may fairly give the first place to local causes. In the end, no doubt, the persistence of local disorder may, and often does, produce the scrofulous constitution. The direction in which local disease of the lymphatics extends is generally from the surface of the body towards the thoracic duct, the centre of the lymphatic system; but this is not invariable; disease may travel down reversely from the lymphatics of the axilla or inguinal region to the knee or shoulder joints, but its extension in these directions takes place very slowly.

It is in states of debility that inflammation of the lymphatic system most frequently occurs. In this, as in many other points, the lymphatic resemble the veins. The tendency to inflammation in the lymphatics may be produced by the very means taken to subdue inflammation in organs of higher vitality; it is frequently seen in its most marked form after bleeding and mercurialization. In the chronic form, it travels so slowly, that its extension as a local malady is completely masked. Although the primary irritation is so frequently derived from the mucous surface, when a gland has once inflamed, it becomes a source of irritation to other glands in its vicinity, which in turn become inflamed, particularly if the primary gland suppurates. The following case is a good illustration of the local origin of glandular disease and its gradual spread along the lines of the lymphatic system.

In consequence of a purely local irritation occurring in a young person of average health, one of the lateral cervical glands slowly became enlarged, and after several months suppurated. The sore thus produced excited through the medium of the lymphatic communications several of the other glands of the neck, most of them below the seat of the first suppuration. A succession of abscesses was the result. The last gland which suppurated in the neck was situated in the pit between the sternal heads of the clavicles and the clavicular attachments of the sterno-cleido-mastoid muscle. Here the disease took two different directions. One extended downwards as far as the middle of the sternum, where all traces of suppuration ceased. The other extended first to the axilla, where several glands suppurated: after this, suppuration successively took place upon the arm, then around the elbowjoint, and lastly low down upon the forearm. At this point the second track of suppuration ended, and the patient completely recovered her health. The only occasions on which any threatening of a recurrence has been perceived has been when an inflamed cicatrix has irritated some of the glands around it. The events here related in a few seconds extended over several years, and any one seeing the case casually would have been impressed with the appearances of a constitutional malady; but I am persuaded that without the local irritation the eruption of glandular disease would never have taken place in this instance, and I am equally convinced that every step was a strictly local extension of disease.

I have, on the other hand, frequently seen cases in which an inflamed gland has been promptly relieved by lancing an inflamed gum, or by the extraction of a carious tooth. The same result may frequently be obtained by treating a sore-throat, relieving a diseased state of the gums, improving a thickened state of the mucous membrane of the nares, or relieving any of the numerous affections to which the mucous passages to the œsophagus and trachea are liable. The point I would strenuously insist upon is this, that while constitutional treatment is of importance in all cases, wherever enlarged glands are present, the mucous membrane with which those glands are in relation is almost sure to be diseased, and to require treatment. We must look, not merely to the glands, but to the internal sources of irritation; and unless we do this, both constitutional treatment and topical applications to the diseased glands will frequently fail. I may mention that, of all topical applications, I know of nothing equal to the effect of small and repeated blisters applied to the enlarged glands, so as to produce a full discharge of serum from the skin covering the gland. The tincture of iodine is a good remedy, but it seems to me to act in such cases rather as a counter-irritant than as an absorbent, and in the former point of view it is not equal to the cantharides.

While swelling of the cervical glands is by no means a certain sign of the scrofulous habit, there is, I believe, one almost unfailing sign of this condition in young children. It consists of enlargement of the fingers, particularly of the first and second phalanges. The tumidity is chiefly seen over the matacarpal bones, the joints remaining of the natural size or nearly so. The swelling is soft, but not œdematous, and evidently consists of infiltration amongst the deeper structures of the finger. The surface is pale and shining, conveying the impression of semi-transparency when the tension is great. Unless in the advanced stages, there is no pain; the last phalanx is seldom affected, and the point of the finger appears by comparison smaller than usual. The subjoined woodcut shows the scrofulous finger in its more marked form:—



The seat of this curious change appears in the first instance to be in the periosteum, and I have known instances in which, without any other manifestation of disease, the bones of a finger have exfoliated, and have either escaped by suppuration or have required removal. I have seen this enlargement of the finger begin a few weeks after birth. Whenever the puerile finger is morbidly enlarged in the manner described, the scrofulous constitution may be anticipated; and I believe the tumid finger to be the earliest indication of this state presented by young children. When it is observed, the subjects of it require that every exertion should be used to remedy the general debility, of which it is the certain and unmistakable sign.

Clinical Lectures
ON
DISEASES OF THE JOINTS.

By SAMUEL SOLLY, Esq., F.R.S.

Gentlemen,—The numerous cases of diseased joints which are admitted into my wards will, I think, be more instructive to you if I make them the subject of a few clinical lectures, and form a good sequel to the observations I have made on injuries of the knee-joint. The subject is interesting both in a physiological and a pathological point of view. There is no part of the living organism which illustrates so simply and so beautifully the adaptation of means to an end, and the perfection of creative wisdom, as the articulating system. All joints are composed of solid materials, parts of the bony and cartilaginous skeleton, with more or less provision for motion, according to the office of the bones and cartilages which enter into their composition. In some instances, joints are merely the joining of bones together, so as to allow only a yielding motion, as in those of the face. In some instances the bones are joined loosely in the young subject, and allow of considerable motion, which, in the adult, is not required, and therefore not permitted; as in the bones of the skull.

It is not with the pathology of those joints that we shall be now detained. The truly movable joints, such as the knee and the hip, are constantly requiring the surgeon's attention. In such joints we have the extremities of the bones moulded into forms which permit of considererable motion without difficulty or danger of displacement. Covering the extremities of these bones, there is that admirable contrivance to prevent concussion—the articular cartilage. To the physiologist this cartilage is interesting, from the simplicity and perfection of the arrangement by which it is endowed with firmness and elasticity; the fibres of articular cartilage being placed, like the hairs of a brush, perpendicular to the pressure they receive in the motions of the joint. To the surgeon this cartilage is interesting, as the frequent seat of disease. Covering the cartilage, and lining the whole joint, is the synovial membrane—the joint-oil membrane, placed there to afford a constant supply of the synovial fluid. This membrane exists in every movable joint, and, whatever the form of the joint may be, the membrane is always a completely closed sac. To protect this membrane, and bind the bones together, we have a fibrous capsule, varying in its form: not always having a continuous surface all round the joint, never being a closely shut sac like the synovial membrane, but tubular, the extremities of the bone shutting up the ends of the tube. All these articular capsules are more or less formed by the expansion of the tendons of muscles, or have tendons attached to them. Without such an arrangement these capsules would be feeble and inconvenient; they would not be, as they now are, tense and resisting at one moment where tension and resistance are required, or loose and yielding the next moment where relaxation and flexibility are required. The knee-joint illustrates this in the most striking way. The quadriceps muscle, with its powerful extensor tendons, forms with the knee-pan the front and side of the capsule of the knee-joint. When the joint is bent, it relaxes and yields, allowing the most perfect flexion. When the joint is straight, and it is important that the bones should be kept in apposition, and the whole of the leg, from the foot to the trunk, form one unyielding pillar, then this capsule is first drawn out of the way of the hinge as it closes, and, secondly, is made so firm, that instead of being a soft, flexible surface, it becomes a firm unyielding wall all round the front and sides of the joint; the back of which is equally well protected by the expansion of the tendon of the semi-membranosus, one of the ham-string muscles: the semi-tendinosus and biceps giving their powerful aid as lateral ligaments.

The peculiar and protecting sensibility of these ligaments must not be forgotten. Each tissue in the body has its own protecting sensibility. The teeth at once feel and resent the presence of acid in the mouth, as one of their greatest enemies; the brain, though insensible to the knife, as has been shown by Flourens, in his experiments on birds, aches if we overwork it; the heart, insensible to the touch, as Harvey demonstrated to his royal master, palpitates and flutters under overexertion, creating the most intense distress, and thus warning its thoughtless master to be still. So it is with the ligaments, protected by that most perfect, most sensible, and sensitive of coverings; they are insensible to those injuries which the skin can warn us of, such as may be inflicted by cutting instruments or burning agents, but they are liable to be stretched; and how soon would our joints be useless if this could be done with impunity. Only contrast the knee-joint in a state of health with the same with its ligaments stretched till they are too long to keep the bones in their natural position; or, to go still further, suppose any joint in the body with its ligaments relaxed: every motion would be followed by a dislocation. No, my friends, the Almighty architect of our bodies has managed things better for us than this. So soon as we by accident subject the ligaments of our joints to such an amount of tension as endangers their integrity, so soon do we experience the most severe pain to which the human frame is liable, and which we all know under the familiar term of "sprain." But I must not forget that we have not yet completed our list of the tissues which form a joint. Even the common cellular membrane which surrounds the joints, is as interesting to the surgeon as it is to the physiologist, for it is not unfrequently the seat of inflammation; and as we shall see when we have to consider the diseases of the knee-joint, it is of the greatest importance to remember its existence, and not to confound suppuration of this tissue with the formation of matter in the interior of the joint. The subcutaneous bursæ are important parts in the structure of most of the locomotive joints, and not unfrequently the seat of disease. Then, last but not least in this important catalogue, we have that cutaneous surface, to whose peculiar and protecting sensibility we owe so much.

We have already seen that the ligaments must not be stretched without damage to the organism, but the skin must yield and bend with every motion of the body, and therefore its elasticity is unrivalled; and in a state of perfect health how beautifully it fits, and how admirably it relaxes where it should be loose, and contracts again where it should be tense. But I must not allow the charm of physiological anatomy to make me forget that it is not now the subject of my lectures, but that we are met here to profit by the surgical facts with which our ample wards present us.

The first case to which I have to call your attention is one of long-standing disease of the hip-joint. The subject of it was a young woman aged thirty-two, one of whose parents died phthisical. She had small-pox when six years of age, and remained in delicate health for some time after. At the age of twelve she fell down a flight of stairs, and injured her left hip, but the injury was considered slight, and therefore unattended to; and as a servant of all work she continued for hours at the wash-tub, though suffering, as she now states, continued, though not severe pain.

She first came under my notice in November, 1841, just ten years ago, when she was admitted into St. Thomas's Hospital under my care. At this time the left thigh and leg were considerably shorter than the right, with all the usual signs of chronic disease of the hip-joint. The buttock was flattened and the line of the glutæus muscle nearly lost, and much more oblique than on the opposite side. All motion of the joint, which was very limited, gave pain, especially when the head of the thigh-bone was brought forcibly into contact with the acetabulum. The thigh was bent on the pelvis, and rather everted.

There was a fistulous abscess communicating with the joint, the capsule of which appeared to be much thickened from chronic inflammation; but I could not detect any diseasd bone. Tonic medicines were given internally, and issues several times repeated, both in front and behind the joint. She was discharged on the 19th of April, 1842, free from pain in the joint, and having gained considerable power of motion; the abscess no longer discharging. With the assistance of a high-soled shoe, she was able to walk very well.

I then lost sight of her till this time last year (Nov. 1850,) when I admitted her again under my care; but I find that she was under the care of Mr. Simon from December, 1847, to March, 1848.

The treatment then consisted of mineral tonics, with a seton over the hip. It is stated in the ward-book that she was presented unrelieved.

The following notes were taken by my dresser, Mr. Complin:—

E. C——, aged thirty, servant, admitted into Queen's ward, Nov. 26, 1850. The patient had been subject to abscesses about the hip for nearly twenty-five years, which were sometimes open for months, and then, as her health improved, healed up again.

On admission, she had a sinus on the outer side of the thigh, just below the trochanter major, which discharged large quantities of pus every day; the course of this sinus was very tortuous, and the probe could not find its way down to the bone. Her health had suffered considerably, and she became very thin. She was ordered one drachm of cod-liver oil, three times a day; blister to the hip; linseed poultice afterwards. After taking the oil for some time, she suffered from sickness, and that was changed for iodine and gentian mixture, twice a day. The sinus still continued discharging immense quantities of purulent matter.

In the beginning of the year 1851, she suffered greatly from violent attacks of retching, and these attacks were always more severe when the quantity of discharge was lessened. She was ordered an effervescing draught, with one drachm of compound tincture of cardamoms, three times a day; and roast meat daily.

During the months of March and April, she improved in health, the sickness left her, and she was gaining flesh. She was then taking, diluted sulphuric acid, ten minims; quinine, one grain; syrup of ginger, one drachm—in infusion of roses, twice a day.

In the beginning of May, the sickness again returned, but without any diminution in the quantity of discharge. She was ordered soda-water and brandy, and one minim of creosote three times a day. Mustard poultice to the epigastrium.

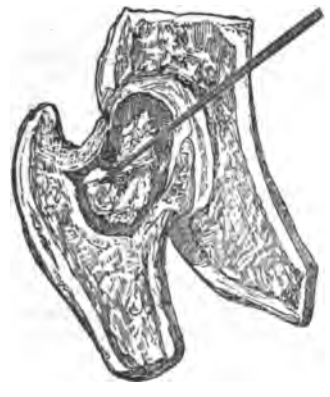
The vomiting continued more or less until the beginning of July, when it again subsided, and she was able to take her food comfortably again. She was ordered two pints of porter daily, and to omit the medicines.

July 19th.—Going on comfortably; takes food; no sickness; discharge still very great. Porter, two pints, daily. During the latter part of July, the vomiting again returned, and continued daily, until she became so exhausted that she could scarcely retain any food on her stomach. Severe diarrhœa also supervened, and she died on the 24th of November, 1851.

Post-mortem Examination.—General appearance: ordinary stature, spare and emaciated, left leg slightly flexed, and drawn upwards and inwards. Below the great trochanter of the left femur, were two old fistulous openings, communicating with a wide fistulous abscess running inwards in front of the thigh bone behind the tendon of the rectus muscle (fig. 2.) This fistulous abscess is bounded internally by a blind pouch, under the psoas and iliacus muscle. In the centre of it there is an opening in the neck of the thigh bone, just in front and below the head of the trochanter major (see fig. 2.)

This opening is about two-thirds of an inch in length, and half an inch in breadth, through the cancellous structure of the femur (see fig. 2.)

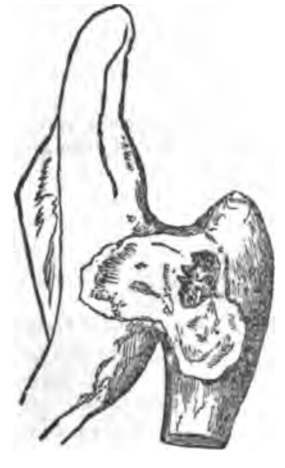
FIG. 1.



Necrosis of the head and neck of the left femur; section.

The cavity of which this opening is the outlet, occupies nearly the whole of the interior of the neck of the thigh bone, and contains a sequestrum of dead bone (see fig. 1.) The centre of the head of the femur is absorbed, with its cartilaginous covering. The whole of the synovial membrane and cartilage of the joint is gone; its place is supplied by a firm fibrous membrane, which, uniting the femur to the pelvis, forms a soft but firm anchylosis. The sequestrum is soft and quite loose, and might be broken down and removed from its cavity through the opening in the sound bone shown in fig. 2. *Chest:* Both lungs perfectly healthy; heart healthy. *Abdomen:* peritonæum healthy; liver greatly enlarged, of very pale colour, and rather firm consistence; a section presented a waxy appearance, the cut surface being remarkably smooth and glistening; the angles and space between the enlarged and light-yellow coloured acini were filled with a colourless or slightly greyish translucent substance, of the appearance and consistence of firm uncoloured calves-foot jelly. Kidneys firmer than usual in texture, but otherwise apparently healthy. Spleen firmer than usual, but apparently healthy. Stomach and small intestines healthy. Cæcum generally congested, and exhibiting numerous irregular ulcers, extending through the mucous membrane. The ascending and transverse colon presented similar appearances, the ulcers gradually diminishing in number and size to the descending colon, which was healthy.—Uterus healthy. In the situation of the left ovary there was a coarsely lobulated tumour of about two inches in diameter, which Mr. William Adams, of whose pathological accuracy I can scarcely speak too highly, has since discovered to be a specimen of that rare disease, cholestoma.

FIG. 2.



Necrosis of the neck of the left femur; anterior view.

To be continued.

PRACTICAL REMARKS ON EYE DISEASES.

By JAMES DIXON, Esq., F.R.C.S.

Surgeon to the Royal London Ophthalmic Hospital.

Syphilitic Iritis in Infants.

INFLAMMATION of the iris, although an extremely rare form of infantile syphilis, has occasionally come under the notice of those who have had extensive opportunities for observing ophthalmic disease among the poor; and accordingly we find it alluded to in the works of Lawrence,[*] Jacob,[†] and Walker.[‡]

The first mentioned of these writers gives only slight details of his cases. One patient was nearly a year and a half old when the iritis came on, which was of a very "mild form; . . . . . . the iris lost its brilliancy, and assumed a dark tint: the pupil was a little contracted; there was some redness of the sclerotica, and of the upper lid, and slight intolerance of light." The tendency to effusion of fibrin—the peculiar mark of syphilitic iritis in the adult—appears to have been altogether wanting. In the other patient an eruption showed itself a few weeks after birth, and a few weeks later severe inflammation of the eyes came on. Mercury arrested this, as it had arrested the eruption. Some weeks afterwards, "both pupils were fixed, and moderately contracted. An opaque body—not a cataract—was seen behind one; the other was clear. Both eyes were blind."[§] Walker, in his "Oculist's Vade Mecum," briefly mentions the occasional occurrence of symphilitic iritis in infants; but in the *Provincial Medical and Surgical Journal,*[‖] says he had seen about six cases of iritis in infants within as many years; he does not, however, expressly state that any of them had a venereal origin. Two of these cases of iritis he relates at length, and I shall have occasion more particularly to refer to them when speaking of the treatment of the disease. Evanson and Maunsell,[¶] with their very large experience of infantile complaints, saw but one case of syphilitic iritis—namely, in a child a year old. The father was the subject of syphilis, but the mother was not known to have been similarly affected. Dr. Taylor has lately seen iritis in an infant, but he considers the disease to have originated from the irritation of teething.

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[*] Treatise on the Venereal Diseases of the Eye, 1830, p. 306.

[†] Treatise on the Inflammation of the Eye-ball, 1840, p. 97.

[‡] The Oculist's Vade Mecum, 1843, p. 184. Provincial Medical and Surgical Journal, 1845, p. 293.

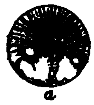
[§] Treatise on the Diseases of the Eye, p. 426.

[‖] Loc. cit.

[¶] Practical Treatise on the Management and Diseases of Children, fourth edition, 1842, p. 534.

A well-marked case of syphilitic iritis, occurring in a child only four months old, has lately presented itself at the London Ophthalmic Hospital, and another came under my notice, four years ago, where nothing but the mother's own testimony was wanting to establish positively the specific origin of the disease.

CASE 1.—William Thomas J——, aged four months, was brought to the hospital Feb. 19th, 1852. He was a well-grown child, lively, and taking the breast well, and this had been his character, his mother said, from his birth. A week before coming to the hospital the mother noticed that the sclerotic of the right eye looked "pinkish," and the child seemed rather to shun the light. Both of these symptoms, however, had passed off when I saw him, and the absence of sclerotic redness was remarkable, when compared with the large amount of fibrinous effusion in the anterior chamber. The cornea was clear; the upper half of the iris (of a grey colour) not perceptibly altered in structure; the lower half was completely hidden by a nodular mass of deposit, of a pale, Naples-yellow tint, which came in contact with the cornea, and completely filled the anterior chamber as high up as the middle of the pupil; the latter was rather dilated than contracted, misshapen, uninfluenced by light, and rendered indistinct in its outline by a film of half-fluid deposit, which encroached on the capsule, (*a*)



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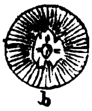


b

At this time nothing was known about either the child or mother having had syphilitic symptoms; and the absence of sclerotic or conjunctival redness led me to regard the deposit in the anterior chamber as most probably of scrofulous nature. As the child's bowels were in good order, nothing more was ordered on this first visit but five minims of Battley's liquor cinchonæ twice a day, and fomentation locally in the event of the eye becoming red or irritable.

23rd.—The eye to-day looked much worse; the upper part of the iris, previously healthy in appearance, had assumed a dirty tint, and was seen through a turbid aqueous humour, looking as if recent fibrin were diffused through it, and rendering the form of the pupil almost indistinguishable. The left pupil had also become slightly irregular, and the aqueous humour had assumed, though in a less degree, the turbid appearance so remarkable in the other eye. Still there was hardly any redness of either sclerotic.

I now obtained the following account from the mother, at present a remarkably healthy-looking young woman:—She said that about six weeks before she became pregnant of this child, her husband communicated to her the venereal disease. She had sores and enlarged inguinal glands, and was under treatment as an hospital out-patient for five weeks, towards the end of which time "pimples" appeared on her face and arms. Both sores and eruption yielded to a moderate course of mercury. She said she had no sore-throat, and there are no scars to be seen about the palate or tonsils. When the child was about a month old, he was attacked with a moist, dusky-red eruption over the greater part of the body. A medical man, to whom the child was taken, administered powders, (probably mercury-with-chalk,) and in about five weeks the eruption disappeared, with considerable desquamation of cuticle.

The increased tendency to deposit in the child's right eye, and the extension of disease to the left one, together with the history which had been obtained from the mother, showed that no time was to be lost in administering mercury; and accordingly a grain of mercury-with-chalk was ordered to be given night and morning, the liquor cinchonæ being continued as before.

26th.—No extension of disease in the left eye; indeed the aqueous humour seems, if anything, rather less turbid. In the right eye the yellow deposit is no longer aggregated together in a mass at the lower part of the anterior chamber, but seems as if softened and undergoing solution in the aqueous humour, so that the position of the pupil can hardly be traced through the cloudy medium. The child's health continues good, his bowels are moderately open, and he takes the breast well.

March 1st.—Less deposit in the right anterior chamber. The outer circumference of the iris is more distinctly seen, the fibrin having collected in a denser mass about the pupil, which is even more obscured than on the last visit. The left pupil is rapidly clearing, and becoming more regular in its outline.

4th.—Things have gone on improving during the last three days. More and more of the outer part of the right iris is coming into view, and the denser portion of the fibrin is seen lying in the pupil. The left eye is almost well.

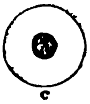
11th.—The right eye to-day presents the appearance sketched at fig. *b*. The iris has regained its natural colour and texture, except near the upper and outer edge of the pupil, where some enlarged veins are visible; and a minute patch of blood is seen extravasated among the fibres of the iris. The pupillary margin is jagged, and adherent throughout to the capsule of the lens, which is overspread with an opaque layer of pale yellow fibrin, in the centre of which is a raised nodule of the same deposit (fig. *b*.) The left eye is well; the pupil round and clear; and the child enjoys good sight with it.

25th.—The left eye remains perfectly healthy. A considerable change has taken place in the right; much of the fibrin which was filling the pupil has been absorbed, and only a very thin, smooth layer overspreads the capsule. The edge of the pupil has lost its jagged outline. The lens comes a good deal forwards, so as very much to diminish the anterior chamber. The veins of the iris are still here and there visible. The child's general health is very good, and his skin is losing a certain dusky tinge which it had when he was first put under treatment. He still continues to take a grain of mercury-with-chalk twice a day.

CASE 2.—Mary Ann W——, aged three months, was brought to me from Croydon, Nov. 13, 1848. The child was strong and healthy-looking at birth; but when about seven weeks old, a brownish-red, scaly eruption appeared over the greater part of the body, which the medical man to whom the mother applied considered to be syphilitic, and for which he prescribed some mercury-with-chalk and one-tenth of a grain of iodide of potassium twice a day.

About a fortnight after the eruption broke out, the mother noticed that the child, who hitherto had seen quite well, had "a pearly appearance" in each pupil, and seemed to be nearly blind. I found the eyes in the following condition:—Both globes rather unsteady, rolling a little from side to side. There was no redness of either sclerotica. All the eye-lashes had fallen off. The left iris (grey) was dotted over, throughout its lower half, with little greyish-white masses, almost like grains of coarse sand, and the inner portion of the iris was streaked with lines of a similar tint, passing vertically, as if fibrin had trickled over the part, and left a track behind. The pupil was contracted, and fringed with the same kind of greyish-white deposit as appeared on the surface of the iris; adhesion of the pupillary edge to the capsule of the lens seemed to have taken place, inasmuch as atropine, which dilated the right pupil, had no effect on the left one. The body of the lens was a little cloudy.

The right iris looked healthy throughout, and the body of the lens clear; but on the capsule, just skirting the outer edge of the pupil, was a chalky-white, crescentic patch; there was, however, no adhesion of the iris at this point, for, when atropine was used, the patch became separated to some distance from the pupillary edge.



The child's mouth was affected with aphthæ, and a scaly eruption covered the face. On the lower limbs were patches of a coppery tinge, extending upwards to the belly and downwards below the knees, with desquamation of the cuticle.

Although both parents denied having had venereal disease, the condition of the child convinced me that its symptoms were of syphilitic origin, and accordingly I ordered two grains of mercury-with-chalk, to be taken night and morning.

November 20th.—The eruption has nearly faded away, and the mouth is free from aphthæ. The dots on the left iris, and the crescentic patch on the left capsule, look smaller. Ordered mercury-with-chalk two grains every night, liquor cinchonæ five minims twice a day, in milk.

27th.—All eruption gone. The child takes the breast well, and is improved in general appearance. The greyish dots and streaks on the left iris have entirely disappeared, and the whitish line of adhesion between the pupillary edge and the capsule exists only towards the upper and outer part. In the right eye, the chalky-looking patch on the capsule is reduced to two small dots, marking the horns of the crescent.

December 4th.—The child's health is excellent. The pupil of the right eye, when dilated with atropine, is very slightly irregular, owing apparently to some little adhesion of its outer edge to the capsule. Every trace of the white patch on the latter is gone, and the pupil is quite black and clear. The left iris now looks healthy in its texture, but there is irregularity and immobility of the pupil, which has not expanded under the use of atropine, and a slight milkiness of the lens remains. The child seems to have regained good sight in the right eye, and follows white objects, such as a pen or piece of paper, moved to and fro before it

January 1st, 1849.—Two grains of mercury-with-chalk have been taken every night up to the present time. The left pupil is still rather smaller than the right, but no synechia can be detected. The child is in good health, and notices objects well, but seems to use the right eye more than the left. The eyelashes have grown again, and are thicker than ever. The medicines were continued in diminished doses for about three weeks after this date.

March 25th, 1850.—The child is well-grown and healthy. There is no synechia to be seen in either eye. The only morbid appearance is a slight cloudiness of the left lens.

The steady improvement, under the use of mercury, without any local depletion or counter-irritation, seems to confirm the belief that both of these cases were really of venereal origin. In Case 2, one link in the chain of evidence is wanting—namely, the mother's admission that she had suffered from venereal disease; but no one who has had much experience in treating syphilitic patients will allow the absence of this testimony entirely to set aside the positive proof afforded by well-marked morbid phenomena.

At the beginning of this paper I spoke of the rarity of iritis as a form of infantile syphilis. Mr. Lawrence, writing in 1841, says,—"numerous children labouring under this disease (syphilis) have come under my observation, but iritis has occurred in two instances only."

In the nine years during which I have been attached to the London Ophthalmic Hospital, the annual number of out-patients has progressively increased from 6000 to 11,000, and yet the two cases above related are the only instances in which syphilitic iritis in infants has come under my own notice. The very slight degree of redness in the sclerotic of infants attacked with this form of inflammation is a fact which did not escape the notice of Dr. Jacob. In case 1, above related, there appears to have been some little redness of the eyeball at the first onset of the inflammation; but, during the time when effusion of fibrin was going on, the sclerotic was, as nearly as possible, of healthy appearance; and, in Case 2, it was cloudiness of one of the child's lenses, and its impaired sight, not any redness of the eyeball, which drew the mother's attention to the disease. Yet, notwithstanding this seemingly low stage of the inflammatory process, organization of fibrin was rapidly proceeding to the formation of opaque adhesions between the iris and capsule of the lens.

Walker, on the contrary, asserts, that iritis in infants is usually accompanied with "considerable intolerance of light and lacrymation." There are several points in this treatment which call for remark. He advises leeches to the palpebræ as "useful in most cases—in such numbers as are suitable to the age and constitution of the child." The "constitution" of the children brought as patients to the eye-hospitals of our great towns, is seldom so robust as to allow of their losing blood without injury; and the occasional application of two or three leeches to the lids, as Walker advises, could influence but little the deep-seated tissues of the iris, choroid, and retina, so as to lessen the disposition of their vessels to exude fibrin.

He goes on to say, that "purgatives, and in some instances even nauseants, should be freely administered in the first instance." Now, that the contents of the child's bowels should not be allowed unduly to accumulate is self-evident; but the use of any medicine likely to nauseate, and unfit the stomach for retaining food, I cannot but regard as mischievous. In no patients do we find fibrinous effusions on the iris and in the anterior chamber more abundant than in those whose vital energy has been depressed below the natural standard.

Walker next adverts to the use of mercury:—"Small doses of calomel, or of mercury-with-chalk, should be administered without delay, and continued until the progress of the disease has been arrested, or the system has been brought under the influence of this powerful agent." With this opinion I entirely agree; but let us see what he considers to be "small" doses. In Case 1, an infant seven months old, two grains of calomel were given twice a day during five weeks; then once a day for two months longer; at the end of that time the dose is resumed night and morning. And what is the result? The last report says: "No alteration of the eye was observed after this time, the pupil remaining permanently contracted. and the capsule opaque." The eye, in other words, was useless. This patient had had no eruptions, nor was there any suspicion, apparently, that the iritis was of syphilitic origin, and yet this enormous quantity of calomel was administered; while in Case 2, where eruptions, of supposed venereal origin, had attacked a child six months old, the accompanying iritis, although attended with as great a tendency to fibrinous effusion as in Case 1, was treated with moderate doses of mercury-with-chalk—two grains night and morning. After less than three weeks of this treatment, "the inflammatory action had entirely ceased; the pupil was moderately dilated, and apparently fixed; the iris appeared dull, but the tubercles [fibrin] had disappeared from its surface . . . . . the blotches on the forehead were much diminished, the bowels more regular, and the general health better." So that (other things being to all appearance equal) the case treated with moderate doses did better than that where such large quantities of calomel had been given.

A few words, in conclusion, on the use of belladonna. Walker says—and similar advice is given by most ophthalmic writers when treating of iritis—"Belladonna should be applied freely around the orbital region, so as, if possible, to keep the pupil in a state of expansion." And again,—"Belladonna must be regarded as the paramount local remedy." I have elsewhere" drawn attention to the inutility of belladonna when the iris is in a state of active inflammation. Such an iris does not move when belladonna is applied to the eye. The natural movements of the healthy iris are extremely delicate, and cannot be properly performed unless there exists a certain balance of pressure in the fluids of the globe. Overdistention of the anterior chamber with aqueous fluid, extensive loss of vitreous humour, undue pressing forwards of the lens, are all causes which will arrest the proper movements of the iris, even when its structure is not appreciably altered; but when this is in a state of inflammation, its veins distended, and fibrin infiltrated into its tissues, no application of belladonna will alter the dimensions of the pupil to any considerable extent. This is a fact which any one treating a case of active iritis can verify for himself; and when once the pupil is filled with effused fibrin, dilatation, even "if possible," will avail nothing, unless such a change in the patient's blood be effected as will check the pouring out of fibrin, and promote the absorption of that already effused. Iritis (apart from the concomitant inflammation of choroid and retina) destroys sight—not because the edge of the pupil becomes here and there united to the capsule of the lens, or because the pupil is rendered smaller; such adhesions would affect only the proper adjusting changes in the size of the pupil what we fear in iritis is, that the area of the pupil should get filled with fibrin, which, becoming a firm, opaque membrane, would entirely shut up the aperture.

Now let us see whether my assertions are borne out by the result of Walker's cases. In the first, belladonna appears to have been constantly used during more than four months, and yet the conclusion of the report describes the pupil as "remaining permanently contracted, and the capsule opaque." In the second case, when the eye was first seen, the pupil was "circular, and not much contracted." Belladonna was constantly used for more than a month. and yet at the end of this period the pupil is stated to have been "moderately dilated," (nearly equivalent to "not much contracted,") "and apparently fixed."

The inefficacy of belladonna in acute iritis was forced upon my notice by the fact that whenever I saw a patient, who, any considerable time previously, had been the subject of that disease, I never found a pupil fixed by synechia in a condition of permanent *dilatation;* and yet this ought sometimes to happen if belladonna acted in the manner its advocates allege. Indispensable as this substance is for attaining a correct diagnosis of morbid changes posterior to the iris, I look upon its employment when that structure is inflamed, not only as ineffectual towards attaining the end proposed, but as likely, in some measure, to draw off the surgeon's attention from that all-important agent, mercury, which alone, as far as we yet know, has the power of checking those inflammatory changes in the eyeball comprehended under the single term, iritis.

REPORTS OF CASES FROM THE OUT-PATIENT DEPARTMENT OF THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, AT BROMPTON.

WITH CLINICAL REMARKS.

By Richard Quain, M.D.,

Fellow of the Royal College of Physicians, and Assistant-Physician to the Hospital.

I. Cases of Arrested Pulmonary Phthisis.

Case 7. *Tuberculous Deposit in both Lungs; Softening of the Deposit (and Formation of a Cavity?) in one; Arrest of the Disease; No return of Symptoms after an interval of nearly three years.*

T. W ——, a lad fourteen years of age, was brought to the hospital on June 4th, 1849, in a state of great debility. His mother stated that her mother and several members of her family had suffered from consumption, and that this boy had had a cough for the preceding twelve months; that he had lost flesh, and had been gradually getting weaker. His expectoration was puriform, but had never been bloody; his breathing was hurried; his pulse rapid; and he presented the ordinary characters of phthisical disease. At the apex of the left lung, diffused bronchial or cavernous-like breathing, with coarse, moist rhonchus was heard; at the right apex the inspiration and expiration were harsh. His weight was five stone. Cod-liver oil, in drachm doses three times daily, was prescribed, together with a few grains of squill pill nightly, and iodine counter-irritation beneath the left clavicle. The lad's improvement was quick and progressive. In five weeks (the oil having been in the interim increased to two-drachm doses) his cough had greatly abated, and his weight at the end of the period was five stone eight pounds and a half. Shortly after, he had some bleeding from the nose, accompanied by headache; the latter was soon relieved by a dose of aperient medicine, and he did well. Symptoms were treated as they presented themselves; and it is noted, on September 24th, that "he feels strong and well, (weighs five stone twelve pounds and a half,) has scarcely any cough, and thinks that he 'might cease to attend any longer.' There is no crepitation at either apex." He continued to receive medicine at the hospital until the close of December (1849)

May 27th, 1852.—As the result of inquiry made after him, T. W—— came to the hospital to-day. He states that he has since his last visit continued perfectly well, and has followed the occupation of "barge-towing," exposed on the river to all weathers; that he has taken as much care of himself as he could, avoiding stimulating drinks and late hours. On examining the chest, I found flattening beneath both collar-bones, more marked at the left side; the inspiratory murmur at this point seemed also to want penetration, as if the air failed to enter all the air-cells; the expiratory murmur was whiffing. These characters were a good deal masked by puerile respiration in the surrounding and lower parts of the lung; the expiratory murmur at the right apex was loud. In general appearance he had greatly improved, having grown tall, and being in proportion stout. His weight was eight stone two pounds.

Case 8. *Tuberculous Deposit in One Lung; Softening; Arrest of the Disease; Restoration to Health.*

T. T——, a linendraper's assistant, aged twenty-five, became an out-patient of the hospital in August, 1850. He stated that he had had a cough, and been losing flesh and strength, for some time, but that those symptoms had become worse during the last two months. He had lost a maternal aunt and uncle by consumption. He has frequently had a sense of oppression at the stomach, with heartburn and flatulence. He has not had hæmoptysis. His breath is short and his pulse is 98. On examining his chest by percussion, there was found dulness at the left apex, with a peculiarly high tone of the sound elicited. Here, also, auscultation showed the presence of bronchial-like breathing, with coarse crepitation.

Cod-liver oil twice daily, in two-drachm doses, some simple cough-pills, a gentian mixture with soda, and counter-irritation under the left clavicle, were prescribed. This patient did remarkably well. All his urgent symptoms had nearly disappeared when, at the end of October, 1850, he ceased his attendance at the hospital. I had previously examined his chest, and found that there still remained the peculiar tone on percussion above mentioned, but that the crepitation had altogether disappeared.

In August, 1851, he came to me again; he had some slight cough, and felt anxious about himself. On examining his chest, I found that very little of the dulness and peculiar percussion tone now remained; the respiration had somewhat of a blowing character, one difficult to distinguish from some modification of the puerile; the inspiratory and expiratory murmurs at the right apex were rather whiffing. I prescribed for him, and heard again after some months that he was quite well.

Case 9. *Tuberculous Deposit in both Lungs; Arrest of the Disease; Removal of the Deposit; Restoration to Health.*

T. W——, an omnibus conductor, forty years of age, married, and having eight children, came to the hospital in July, 1850. He stated that his habits were regular, that he lived tolerably well, that his father died of consumption, and that his own health, though generally pretty good, had been so bad during the last four months as to prevent him from following his employment. He has had more or less cough during the winter, but since March it has been severe and constant; his breath has been short; he has lost much flesh; and he has frequently, in this interval, had spitting of blood. He is often sick, and his digestion is impaired. At the apex of the right lung there exists dulness on percussion, and the respiratory murmur is feeble; at the apex of the left lung the respiration presented the character to which the term *saccadé* has been applied, and which has been aptly compared to the jerking action of a cog-wheel. Here, too, there was some slight dulness. Infusion of gentian, with soda and hydrocyanic acid, were prescribed for him, with the view of improving his disturbed digestive functions, and some pills containing conium and morphia were given to quiet the cough.

These remedies had the wished-for effects; and early in August he was able to commence the use of the cod-liver oil, still taking the bitter mixture once daily. Thus he continued improving in health, with slight intermissions, for the following eight months, when no examination of the chest having been made in the interval, I find, on March 13th, that "there is apparently no dulness now at the right apex; the respiration is somewhat puerile; the left apex seems rather duller than the right, but there is nothing very remarkable in the respiration, save slight harshness."

On the 10th of the following month (April, 1851) he expressed a wish to resume his employment, feeling now quite well. The slight harshness of the respiratory murmur at the left apex continued.

May 27, 1852.—He came to the hospital to-day, looking extremely well. He stated that he has followed his occupation as an omnibus conductor on the Kensington-road for the last twelve months without a day's intermission. He is perfectly well, and free from cough or any other symptom of chest complaint. He has taken cod-liver oil whenever he felt weak or poorly. The respiratory murmur at the apices of both lungs has a puerile character, being now loudest at the left. A careful comparison seems to show that the right infraclavicular space is flatter than the left, and it may be a shade duller. These physical signs, of no great importance in themselves, were evidently connected with the process of cicatrization which had taken place in the lungs, and are of interest when placed in relation with the remarkable improvement in the man's general condition.

Case 10. *Tuberculous Deposit in One Lung; Softening; Formation of a Cavity; Arrest of the Disease; Restoration to Health.*

M. P——, aged twenty-five years, the wife of a blacksmith, became an out-patient of the hospital in the spring of 1848, but I did not see her until the early part of July, when I learned that her condition had improved since her admission. She informed me that she had had a cough for nine preceding months, that she had lost flesh, had frequent slight spitting of blood, and latterly a free expectoration of yellow matter. She had lived well, in a healthy locality, and knew of no cause for her illness. Her father had died "asthmatical," and one of her sisters of consumption. Her abdomen had increased in size during the two or three months antecedent to her admission, and her menstruation being very irregular, a presumption of pregnancy had arisen; but an examination showed this not to be the case, but that the increase of size was due to enlargement of the liver. She looked thin (her weight was seven stone twelve pounds) and hectic, and her pulse and breathing were both much hurried. Dulness and bronchial breathing at the summit of the right lung, taken in connexion with the series of symptoms just mentioned, clearly indicated the seat and nature of her disease. The left lung was apparently healthy. I have no notes of the treatment of this case for the first three months of her attendance, but in July she began to take an emulsion containing cod-liver oil in drachm doses, and also some mild alterative pills. In the course of two or three weeks, the cough being troublesome, five grains of squill pill were prescribed nightly at bed-time, and subsequently counter-irritation, by a blister beneath the right clavicle. In this way she continued doing well, her general health being certainly improved, when it is noted, on October 16th, that "gurgling is now heard where bronchial breathing had existed." It was thus evident that the process of softening was going on, and that without causing any increase of constitutional disturbance.

At the end of October, I find that the presence of pectoriloquy beneath the right clavicle indicated the formation of a cavity. There was still dulness, but the moist rhonchus was less distinct. The size of the liver had decreased, and she was on the whole better, save the cough, which was troublesome. Cod-liver oil in the same form and quantity was continued, pills containing conium and morphia were substituted for the squill pill, and iodine counter-irritation was applied. From these remedies she experienced relief, and at the close of November she was doing well; her weight had increased to eight stone three pounds and a half; when she, in common with other patients, appeared to suffer from the weather. Her digestion became disturbed, and her cough bad. A chiretta infusion, with soda, was prescribed, with relief to the former, and a simple "opium linctus," with the counter-irritation, had a like effect on the latter. She was shortly after able to recommence the cod-liver oil, which she took in its simple form, in two-drachm doses. During this winter and spring (1848-49,) she continued slowly to improve, sometimes suffering from dyspepsia, increase of cough, pain over the liver, slight hæmoptysis, &c., losing a little ground from time to time, but invariably gaining subsequently more than she had lost.

Passing thus over the interval, I find the following note of her state in the middle of the following summer:—

"July 2nd, 1849.—She now feels and looks uncommonly well; (her weight is eight stone seven pounds, though lightly clad;) she has but little cough, and scarcely any expectoration; her menstruation is much more regular, and the hepatic enlargement is considerably diminished." The physical signs indicated contraction going on in the cavity. There was flattening under the right clavicle, some dulness, and a creaking sound, with some coarse crepitus, after coughing. At the summit of this lung, posteriorly, there was heard distinct cavernous-like breathing, with vocal resonance; at the apex of the left lung the respiratory murmur was puerile. The dose of cod-liver oil had been by this time increased to six drachms three times daily, and she had taken, when her digestion became disturbed, infusion of gentian with soda and hydrocyanic acid, three times daily, the oil being occasionally intermitted.

During the autumn and following winter (1849-50) the improvement continued. She omitted the cod-liver oil in the months of November, December, and January, still using the tonic mixture, cough linctus, and counter-irritation. Her weight in January was nine stone two pounds, including heavier clothes. Not feeling, on the 21st of this month, quite so well, she resumed the oil, in three-drachm doses three times daily, still continuing the mixture once daily.

This treatment was continued during the spring and summer (1850,) and in the ,middle of August I find it noted, that "she now feels quite well. The physical signs at the summit of the lung, posteriorly, continue much as before; in front there is flattening, and the inspiratory and expiratory murmurs are harsh."

In the following winter (1850-51) she came to the hospital from time to time, and received the gentian mixture. In December she had an attack of bronchitis, which was cured by a blister on the chest. In February, after some exertion, she had an attack of hæmoptysis, and ceased to attend the hospital.

In March, 1852, feeling anxious to know what had been the result of so interesting a case, Mr. Edwards, our excellent resident officer, was so good as to make inquiries after her. He found her actively engaged in some laborious domestic duties, and by his request she came to see me at the hospital on the following day.

She appeared in the fullest health; (her weight, originally seven stone twelve pounds, was now ten stone eight pounds;) she was free from cough or symptoms referrible to the chest. She told me that the hæmoptysis above-mentioned became so severe that she required the assistance of a neighbouring practitioner, that she was confined for some weeks by its effects, but that she afterwards felt no ill consequences whatever. She had taken the cod-liver oil occasionally during the subsequent twelve months, but not at all lately. She said she had nothing to complain of; but on inquiry I found that her menstruation was irregular, and there was still some hepatic fulness. There was very remarkable whispering pectoriloquy over a small spot at the extreme apex of the right lung, and flattening under the right clavicle. In other respects there was nothing peculiar. She further informed me, that she had, during the last winter, gone through much anxiety, combined with physical exertion, consequent on the illness and death of a near relative, and that her health had not in any degree suffered thereby.

CASE 11. *Tuberculous Deposit in the left Lung; Softening; Arrest of the Disease; no re-appearance after an interval of more than three years.*

M. A. B——, a thin, pale, delicate girl, nine years old, was brought to the hospital on September 11th, 1848. Her mother stated that she had never been a strong child, and that she had passed a large worm (evidently an *ascaris*) five years previously. One of her aunts had died of consumption, and during the last two or three months the little patient had had a cough, and had greatly declined in health. Her breath was short; she expectorated some greyish-yellow phlegm; she complained of pain in her chest; her pulse was 106. There was distinct crepitation with dulness over the apex of the left lung; her weight was two stone twelve pounds. Cod-liver oil, in two-drachm doses three times daily, was prescribed, and a syrup formed of acacia, mixture, syrup of squills, and a minute portion of morphia, was directed to be given when the cough was troublesome. Improvement took place quickly and steadily. In the middle of the following month (October,) her cough is stated to have nearly left her, and the pulse counted but 96.

On the 13th of November, the notes record that "she is greatly better (her weight is three stone three pounds;) she scarcely coughs at all; her appetite and spirits are good; there is no crepitation, but there is apparently slight flattening beneath the left collar-bone, and the respiratory murmur is rather harsher there than at the opposite side." She continued in much the same state during the winter (1848-49.) On one occasion during the month of February, her mother being laid up by illness, she was less cared for, and she became paler and thinner than she had been since her improvement commenced. Infusion of calumba, with citrate of iron, was prescribed, and she soon did well. At the end of May, her weight being three stone five pounds, she ceased to attend. In the following October (1849,) she came to the hospital, looking comparatively stout and healthy (weighing three stone seven pounds,) and her mother said that she had not since her birth been so well.

June, 1852.—Inquiry being made, this little girl came to the hospital. She said that she had continued quite well; she had grown tall, and stout in proportion, her weight being four stone nine pounds and a half. On examining the chest, I found the spine somewhat curved, the convexity of the curve (situated in the dorsal region) being towards the left scapula. The infra-clavicular spaces at both sides expanded equally and well. Puerile respiration, particularly loud, was heard beneath the left clavicle in the former seat of disease. Behind, at the very summit of the lung, there was a point of decided dulness, and over this spot the puerile respiratory sound received a peculiar harsh character. The dulness was evidently the result of some induration and puckering which existed at the apex of the lung from which the tuberculous deposit had been eliminated.

Case 12. *Tuberculous Deposit in the Right Lung; Softening; Arrest of the Disease; Restoration to Health.*

G. C——, a carpenter, thirty-one years of age, married, having two children, living well, and in a healthy situation at Strood, near Rochester, came to the hospital in December, 1849. He stated that his mother had had seven brothers and sisters, who all died of consumption; that he himself had long suffered more or less from indigestion, but that lately this had been worse. He has had a cough for twelve months, with expectoration of whitish or yellow phlegm, and frequently of blood. He has lost much flesh, and his breath is extremely short on any exertion. Dulness and coarse crepitation at the summit of the right lung gave evidence of the seat and nature of his malady.

The infusion of gentian, with soda and hydrocyanic acid, were prescribed, to be taken three times daily, and five grains of compound galbanum pill with the like frequency; iodine was applied beneath the right collar-bone.

At the beginning of January (1850) his digestion was much better; he omitted the mixture, continued the pills, and commenced taking cod-liver oil in two-drachm doses, with a cough pill when necessary at night. Passing over an interval of three months, which presented nothing remarkable, I find that at the end of March "he is in all respects greatly better. There is marked flattening beneath the right collar-bone, dulness, and very little crepitation. The left lung extends across to nearly the right margin of the sternum." He had taken the oil in two or three drachm doses, and the bitter mixture &c. when occasion required.

On the 4th of July (1850) he came to the hospital, and stated that he had left off all medicine during the preceding month; that he was now at his employment, and was quite free from cough or any symptom of illness. On examining the chest, the flattening at the right apex was evident; there was no crepitation there, but the inspiratory murmur was weak, and the expiratory loud; at the left apex the respiratory murmur had a puerile or supplementary character.

On May 26th, 1852, in reply to an inquiry, this man writes to say, that his health has continued good; that "he has not been so well for years as he is at present;" and that "he has not lost one hour of time through illness since his last visit to the hospital."

(*To be continued.*)

ON OVARIAN DROPSY TREATED BY PRESSURE, &c.

REPORTS OF SOME FURTHER SUCCESSFUL CASES, WITH REMARKS.

By I. B. BROWN, Esq., F.R.C.S.

In my several previous papers on Ovarian Dropsy, treated by Pressure, I have given the history of twelve cases so treated, with the results, whether successful or not. I have now the satisfaction of being able to publish other two successful cases, and shall append to their detail some general observations on the treatment of ovarian dropsy, in continuation of those which accompanied the last of my previous series of papers, (see The Lancet, 1849.)

On the completion of the papers now undertaken, I hope to find opportunity to collect what I have hitherto published relative to ovarian dropsy, its diagnosis and treatment, and to present it, with the results of subsequent experience and study, in a distinct form, so that the profession may be enabled to weigh the respective merits of the various plans of treatment proposed, and to decide on that one which promises the greatest benefit in any given case.

Case 1.—Miss L———, aged thirty. When called to see this lady, (August 8th, 1847,) I found her in a weak state, and much emaciated, especially about the shoulders and chest; on the right side was an ovarian cyst, about the size of a full-grown fœtal head, apparently simple, and with distinct fluctuation. On a subsequent and more minute examination, however, a solid tumour could be detected, appended to the under side of the cyst, resting against the rectum, and, as the patient informed me, impeding in some degree the evacuation of the bowels. By the size of the tumour, the uterus also was pushed to the left side; menstruation had continued regularly; the bowels were torpid; the kidneys acted freely.

This lady stated that she had been subject to pain in the abdomen, aggravated at intervals for several years; but ovarian disease had not been suspected. Her health latterly had become considerably debilitated. To commence treatment, and to improve the health, I ordered a tonic mixture, containing bark, and pills composed of blue pill, aloes, and hyoscyamus; and also the inunction of mercurial ointment upon the abdomen and the inside of the thighs occasionally.

September 29th.—Assisted by my brother, I tapped the cyst, introducing the trocar in the median line, and drew off five pints of a colourless, transparent, and slightly albuminous liquid. The abdomen was then compressed by pads and a bandage.

30th.—During the preceding night, the bandage caused some painful pressure over the crest of the ilium, which was, however, at once relieved by slitting the bandage a short distance over the part in pain. In other respects she was progressing comfortably.

October 1st.—Finding some mechanical obstacle existed to the passage of the fæces through the rectum, I made an examination per vaginam, and found a hard, resisting tumour pressing against the anterior wall of the rectum, and upon the removal of the bandage, perceptible also through the abdominal parietes as a rounded mass, about the size of a small fist. It was slightly painful on pressure, and evidently seated behind the recently-emptied cyst, to which, moreover, it appeared to be connected. Owing, therefore, to the mechanical interference by this dense tumour with the due evacuation of the bowels, and the sympathetic vomiting thereby induced, the stronger pressure by means of pads was obliged to be discontinued, and I had to content myself with the moderate pressure or simple support of a flannel band, so furnished with loops as to be able to be tightened at pleasure.

13th.—About this period, a fortnight after the tapping, she complained of great pain in the left leg, which I discovered to be much swollen in its whole extent, white, shining, and tense, but not owing to simple œdema. This condition of the leg was soon relieved by appropriate, external applications, and by the administration of some pills, containing the watery extract of aloes and blue pill, every night, and she was shortly able to take a tonic draught, containing steel, three times a day, with much benefit to her general health.

18th.—The bowels now act daily; the urine is copious; her spirits are improving, the long-enduring despondency passing away.

21st.—Examined the abdomen, but could discover no return of fluid within the cyst, which now existed as a firm tumour, situated much more in the median line than formerly. The catamenia have recurred at the due time, and the patient's health is evidently much improved.

In January, 1848, Miss L—— left town for Brighton, having been previously specially enjoined to persist in the use of the bandage, keeping up as much pressure as she could bear with comfort. At the period of her leaving London I could discover no sign of a return of fluid in the cyst.

At the end of March, 1848, I received a letter from Mr. Philpott, of Brighton, informing me that he had recently examined Miss L., and was unable to detect any ovarian disease; but that, as the bandage caused some uneasiness. he had recommended the trial of an air compress, confined over the abdomen. Mr. P. moreover stated that the lady's health and strength had much improved, and that she was capable of taking more out-door exercise.

During March, 1849, the patient was staying in London, and I had the opportunity of investigating her condition, now that a year and a half had elapsed since she was submitted to my treatment. The result was, that I could find no indication of the ovarian disease.

Dec. 1851.—I am enabled to state that this patient has remained to this date perfectly well, evidencing no return of the ovarian disease. This case has consequently borne the test of time as to its successful termination, above four years having passed by since it was brought under treatment.

Case 2.—Miss O———, aged twenty-four, came under my care in June, 1848, at the recommendation of Sir B. Brodie and Drs. Bright and Locock, who had previously been consulted. I found her looking pale and delicate, particularly thin about the neck and chest, but with the abdomen as much enlarged as in the seventh month of pregnancy. On examination, a thin cyst, with distinct fluctuation, was found to proceed from the diseased left ovary; it could not be moved from its position towards the opposite side—a circumstance which led me to surmise the existence of adhesions. I received the following history from the mother:—When three years old, a hardness and distension of the abdomen were noticed, dependent, it was believed upon mesenteric disease. This yielded to treatment—an enlargement, however, still frequently recurring. When thirteen years of age, she suffered from bilious attacks and constant looseness of the bowels—disorders which disappeared on the establishment of the menstrual function, which continued subsequently to be regularly performed. In her sixteenth year she had measles, with a severe asthmatic attack—to the latter she was predisposed by birth; from this illness she recovered, and remained in tolerable health till 1840, when she was seized "with fever and asthma," accompanied by copious expectoration. After this she went on pretty well, having, however, an annual attack of hay fever, until July, 1844, when the asthmatic attack was so severe as to preclude her lying down, and was attended with very profuse expectoration. At the end of the month this malady receded, but the stomach, which was indeed always distended during those seizures, now swelled so suddenly and considerably as to cause alarm. This circumstance was attributed to the large quantity of grapes she had eaten, (she was at the time staying in Switzerland) and to the fact of her having swallowed the seeds; she was consequently treated for obstruction of the bowels. The medicines prescribed were successful in lessening the size of the abdomen; but she now became subject to a feeling of oppression at the pit of the stomach, which was soon observed to be attended by a gradual enlargement of the abdomen. Of the last, however, she made no particular complaint, but her health remained delicate, and her digestion feeble. It should be further mentioned, that the sudden swelling of the abdomen, while in Switzerland, followed immediately on a copious bleeding prescribed for the relief of the asthma. In the autumn of 1847, the abdominal swelling became very prominent, and she was then attended by Dr. Gairdner.

Having been placed under my care, I commenced treatment by the exhibition of a saline diuretic mixture, and of pills consisting of the watery extract of aloes, with blue pill and extract of conium.

Aug. 14th, 1848.—I performed the operation of paracentesis, Dr. Gairdner, her usual attendant, and Dr. Locock, who had been consulted, being present. Fifteen pints of a clear amber-coloured fluid escaped; some faintness supervened, but otherwise the operation was borne very well. Pads were placed over the cyst, and secured by adhesive plaster, and pressure exerted as usual by the employment of a flannel roller. Was ordered to continue the mixture and pills.

15th.—During the night she had a severe paroxysm of asthma, which, by causing restlessness, loosened the bandage, and rendered its re-application necessary.

16th.—Is tolerably comfortable; the urine is voided in quantity about equal to that of the liquids taken.

17th.—Is feverish to-day and restless, with a hot skin, and pulse at 100. Bandage and pads re-applied. Ordered a febrifuge mixture and sedative pills.

18th.—The urine voided is in good quantity, but thick, deposits a copious sediment, and becomes quickly alkaline.

19th.—Urine clearer, and less alkaline. The bowels have been relieved by the pills prescribed yesterday, and the patient feels better.

24th.—The urine is now clear, and its reaction natural. In order to stimulate the kidneys to increased activity, I ordered a diuretic mixture, of acetate of potash and tincture of squill; and likewise some aperient pills.

The patient still keeps the recumbent posture in bed, as I think it best suited to her present condition. She is gaining flesh, her appetite is good, and she is allowed wine daily.

26th.—On this day, Sir B. Brodie saw Miss O—— with me, and after. a careful examination, could not discover the cyst, and considered the case to be progressing most satisfactorily.

31st.—Has gone on favourably; the kidneys have continued acting freely; bowels regular.

Sept. 5th.—The catamenia have appeared naturally and at the proper time. The bandage and pads were removed; the latter were subsequently replaced and secured in their position by a flannel band, fastened by tapes instead of the ordinary bandage. Neither cyst nor fluid can be detected.

Oct. 6th.—The patient has gradually improved since the last date, gaining flesh and strength. Believing change of air would accelerate her recovery, I advised her removal to the sea-side.

Nov. 7th.—I received a letter from Sir B. Brodie, who visited her at St. Leonard's, informing me that the lady was going on as favourably as could be wished; that he could not discover the least sign of fluid, nor of a tumour of any kind; and that she strictly persevered with my plan.

A month after this the patient called upon me, and on examination I could find no trace of cyst nor of fluid, whilst her health seemed now very good. She again shortly left London, and it was not till February, 1849, that I next saw her. She remained, then, in the same satisfactory state, and Dr. Gairdner, who was also present on the occasion, expressed his opinion of the entire success of the treatment.

In the April following, she was again seen by Dr. Gairdner and myself, and Dr. Locock, on this occasion, besides. She seemed in good health, and to have gained flesh. No fluid nor cyst could be discovered by the most careful examination.

Some months after the last date, she was further examined by Dr. Locock and myself, and as no trace of ovarian disease could be detected, permission was given her to marry. Her marriage accordingly took place in April, 1850; she became pregnant, and in Feb. 1851, I attended her in her confinement, after a full period of nine months, when she gave birth to a fine, healthy child.

Immediately after delivery, and whilst the abdomen was perfectly flaccid, an examination was made by Dr. Locock and myself, with the gratifying result, that no indication of ovarian disease was discoverable.

Her convalescence was favourable, and this lady has remained in good health to the present time. Thus we have the history of this case since the commencement of treatment, extending over a period of upwards of three years; a sufficient lapse of time, it would appear to me, to warrant its being termed a successful case.

I shall restrict myself at present to the account of the two preceding cases; otherwise I could adduce, as further illustrations of the beneficial effects of my plan of treatment, other instances of more recent occurrence in my practice; but I wish to escape the charge of being over hasty and anxious to publish cases as successful, when they have not been adequately submitted to the test of time.

In my next paper I shall obtrude upon the attention of my professional readers some brief practical remarks upon ovarian dropsy, its amenability to treatment, the various modes of treatment, advocated, and their relative merits.

(To be continued.)

CLINICAL ILLUSTRATIONS OF SUB-ACUTE OVARITIS.

By E. J. Tilt, M.D.,

Senior Physician to the Farringdon General Dispensary and Lying-in Charity, and to the Paddington Free Dispensary for women and children.

The light of modern physiology thrown on many facts derived from the highest sources, enabled me, some years since, to apply to these facts the rules of reasoning adopted in general pathology, and I then endeavoured to give a wider and safer basis to our knowledge of the diseases to which the ovaria are liable, and, by so doing, to lend my humble efforts to oppose a tendency to consider the womb as principally affected in all diseases of women. Others have subsequently added to our information on these points; but I am not aware that my views have sustained any serious attack. In the papers published in The Lancet, as well as in a work on "Diseases of Menstruation and on Ovarian Inflammation," I avoided one chance of error by principally making use of facts registered by others, without any pre-conceived views of their importance. I now propose to publish some of the cases I have met with, leaving others to decide how far they support the views I have put forth.

Case 1.—Emma W——, twenty-two years of age, of middling stature, and with red hair and grey eyes, was admitted to the Paddington Free Dispensary, July 14, 1851. She menstruated at twelve, and has ever since been regular every month, even during pregnancy and the ten months she suckled her child. For several months previous to, and since, weaning the child, she has suffered much from pain in both ovarian regions, which pain was always increased by menstruation, by walking, by pressure, by ascending the stairs, or by any sudden jar. Lately, the left ovarian region has become the most painful, and the left breast has been likewise sore and swollen. For the last few weeks the legs swell at night; there is slight leucorrhœa, little fever, and she complains of feeling "heavy for sleep," and would sleep on all day if she could.

On making a digital examination, there was no sign of uterine disease, but pressure directed towards the left ovary was intensely painful. I ordered the following compound camphor mixture:—Solution of potash and tincture of cardamoms, four drachms each; tincture of hyoscyamus, six drachms; camphor mixture, six ounces: a tablespoonful to be taken three times a day, and a small quantity of the following powder to be taken in a little milk at night:—Sulphur, two ounces; biborate of soda, one ounce; while three or four drachms of the following ointment were to be applied, not rubbed, over the lower portion of the abdomen:—Strong mercurial ointment, one ounce; extract of belladonna, two drachms. I then directed a thin linseed poultice to be applied over the anointed surface, and over that a piece of oiled silk, with the understanding that this application was to be removed and re-applied as soon as possible in the morning, at two or three in the afternoon, and before disposing the patient for her night's rest. (I thus enter into minutiæ, as their observance alone leads to success.)

July 17th.—The patient is better; the pains are only violent at times; there is no leucorrhœa, and the bowels are comfortably moved.

21st.—Ovarian pains all gone; the mercurial ointment is therefore discontinued.

28th. I learnt that on the 22nd, after an attack of diarrhœa, menstruation returned ten days before it was due, but unaccompanied by ovarian pains. I prescribed the following pills, to be taken at night:—Sulphate of quinine, one scruple; extract of opium, five grains; extract of liquorice, a sufficient quantity to make ten pills. But upon leaving me, and before this treatment could be begun, menstruation again appeared, and there was a throbbing and swelling of both breasts, and pain referred to the pubis. On making an examination, I found the neck of the womb hot and swollen; I ordered injections with a solution of acetate of lead, and I returned to the application of the compound mercurial ointment. I saw the patient after the subsequent menstrual period, which was normal as to time, quantity, and pain; the womb was ascertained to be healthy, and the patient was quite recovered.

This case was first one of sub-acute ovaritis, lasting for months, until the increased uterine activity, swelling of the womb, and irregular and prolonged menstruation, necessitated the employment of local measures to remove uterine congestion. The mercurial applications, however, should not have been discontinued on the subsidence of the ovarian pains; for as the womb was in a healthy state on the 14th inst., if they had been continued, the slight attack of uterine disease would have probably been avoided.

If I had not positively ascertained, on the 14th, that the womb was in a healthy state, I should, on finding it slightly diseased, on the 28th, have concluded that the previous pains were to be attributed to the beginning of undiscovered uterine affection, and not to ovaritis, which I believe to have been the primary affection, determining the uterine inflammation in the same way that the physiological congestion of the ovary determined the physiological congestion of the womb in menstruation.

CASE 2.—Sarah H——, thirty-two years of age, with black hair, grey eyes, and a Roman cast of countenance, was admitted to the Paddington Free Dispensary on the 2nd of June, 1851. She first menstruated at fifteen, and has always been regular; but at each period she has suffered from pain in the right leg and thigh. She married at twenty-one. Conception never took place. The last menstrual period came on eight days before it was due, and was attended by a great increase of the pain habitually felt in the leg and thigh. The catamenial flow lasted its usual time, but the pains did not abate on its disappearance, and in addition the patient suffered from constant pain in the right ovarian region, augmented by exertion, by walking, or by pressure. The water was freely passed; the bowels, which were much relaxed during the last epoch, were now confined; there was no leucorrhœa; and a digital examination indicated that the womb was healthy; slight fever; and pressure directed towards the right ovarian region increased the patient's pain. I ordered an antimonial mixture, and the compound mercurial ointment, directing it to be used as in the preceding case; likewise the compound sulphur powder, as in the previous case.

June 4th.—Better in every way: the fever is reduced, the pain less intense, and pressure on the ovarian region determines less pain. The ointment was ordered to be continued, and the compound camphor mixture as prescribed in the first case. A small quantity of carbonate of soda was ordered to be taken in a little cold water after meals, and two compound colocynth pills every night.

9th.—The patient came limping into the room with tears in her eyes. The pain in the right thigh had left her, but that in the right ovarian region had returned with more intensity than before. There was difficulty in passing water. On making a digital examination, I found that the womb was lower down than on the 2nd of June, and that its neck was swollen and painful in its posterior half; no leucorrhœa The patient was ordered to continue the former treatment, and, in addition, to have, twice a day, as an enema, a cupful of clear starch, in each of which enemata were to be exhibited forty drops of laudanum.

12th.—Four enemata had been administered to the patient, and the pains had disappeared. I subsequently ascertained that at the next period she menstruated after her usual manner.

The painful uterine swelling detected on the 9th of June was certainly secondary to that of the ovary, since, on the 2nd, the womb was found healthy.

CASE 3.—Sarah W——, a lymphatic girl, aged twenty-one, with light hair and blue eyes, tall and slender; has been living in London, as a servant, for the last four years. Menstruation appeared at seventeen, after suffering for a month from headache and great drowsiness. From the third month of its first appearance menstruation came on regularly. It assumed the monthly type, lasting four or five days, and being in small quantity.

Eight days before the last epoch, she was seized with intense pain in that portion of the left hypogastric region which corresponds to the ovary. Notwithstanding the pain, she did her accustomed work, and menstruation came on at the regular time, and as abundantly as usual. Unfortunately she was at that time obliged to go up and down stairs much more than usual; and far from being relieved by the catamenia, there remained an intense pain, which she compared to labour pains. She became hot, thirsty, and feverish at night, and she was admitted as a patient at the Paddington Free Dispensary on January 9th. I found the abdomen sore, particularly in the left ovarian region, where was also a sensation of fulness felt by the patient herself, and a slight swelling, which could not be detected on the right side. Walking or moving on the left leg, and pressure on the painful spot, increased the pain. There was no leucorrhœa, nor pain above the pubis.

I ordered eight leeches to the seat of pain, and poultices. to be afterwards applied over the leech-bites; but as the tongue was foul, and there was a tendency to sickness and constipation, I also ordered an emetic, and compound colocynth pills.

The leech-bites bled freely; the vomiting seemed to relieve the intense pain, which was, on the contrary, exasperated by the purgative action of the pills; and when I saw her on the 13th, she was better in every respect, and the intense pain was circumscribed in the left ovarian region. There was no pain above the pubis, no leucorrhœa, no external irritation.

This intense pain produced by menstruation, so well limited to an organ we know to be highly congested at that time, unconnected with uterine disturbance, with peritonitis, what is it? Those who attribute to the womb all acute disease of the genital apparatus, will say that the pain in the left ovary was the result of the uterine congestion determined by menstruation; and as, in the absence of marked uterine symptoms, I did not feel myself justified in making a speculum or even a digital examination, I could not object to the position, if, in similar cases, (Nos. 1, 4, 6, 9, & 10,) an examination had not been made, without any uterine disease being detected. Considering, therefore, the case to be one of sub-acute ovaritis, I followed up the previous treatment by the use of mercurial ointment, as in the former cases.

16th.—The patient was comparatively free from pain.

27th.—The ointment, pills, and mixture, were continued until menstruation came on at the usual time, and in the usual manner. After it was over, the pain in the left side had completely disappeared; but on considerable exertion, or pressure on the right ovarian region, the patient experienced the same kind of pain, only less intense. She was directed to continue the use of the ointment and poultice at night only; and on the 10th of February she was discharged cured.

CASE 4.—Mary C——, aged twenty-two, looked like a Flemish girl, very stout, with a ruddy complexion, auburn hair, and blue eyes. She was admitted at the Paddington Free Dispensary, May 15, 1851. Menstruation had been easily established at sixteen, but had always been accompanied by a great deal of lumbo-abdominal neuralgia, appearing every month, or sometimes missing for two, six, or nine months without any considerable inconvenience. She had been very lately married. On interrogating the patient, I heard that when menstruating, three weeks ago, the flow, after lasting two days, had stopped for three, and then returned for one day. Its subsidence was followed by a violent pain in both ovarian regions whenever she moved about. It hurt her to pass water. There is considerable pain in the right breast, slight leucorrhœa, and considerable fever. Any sudden movement of the lower limbs brings on the pains, so does ascending the stairs, and pressure on the ovarian regions, particularly on the right, which I found swollen and tense; a state of things the patient expressed by saying "she was all on one side." A digital examination convinced me that the womb was normal; the finger directed towards the ovaries greatly increased the pain, particularly on the right side, where a solid lump could be distinctly felt, while on the left side nothing similar could be distinguished, although pain was determined by pressure with the finger. The bowels were quite regular. I prescribed an antimonial mixture, and ten grains of Dover's powder at night, the compound mercurial ointment to be spread on the ovarian regions, and the application of linseed-meal poultices.

22nd.—The fever had abated, the pains in the back had disappeared, and those in the ovarian region were less intense. The same treatment was continued.

Menstruation returned at the third instead of at the fourth week, and had lasted its usual time, when, from standing for three hours, it returned as a flooding, and continued for several days.

June 4th.—She was much better; pressure on the right side still, however, brings on pain and a sensation of numbness in the right limbs. In July the patient had menstruated regularly, and was free from pain.

If this was not a case of sub-acute ovaritis, developed under the influence of matrimony in an excitable girl of a sanguine habit, what is the disease to be called? The very abundant uterine discharge may have been considered critical in this instance, as it was followed by decided improvement.

Case 5.—Elizabeth W——, twenty years of age, a brunette, dark hair, hazel eyes, of slender make and middling stature, is a needle-woman, single, and in good circumstances. After slight pains in the back, she menstruated at twelve; was regular from the first; the catamenia occurred every four weeks for three or four days, very abundantly. They had stopped for a year without any known cause, and they had returned without physic, being regular for the last three months, but much less in quantity, and paler in appearance than usual. She was admitted to the Farringdon Dispensary, Jan. 8, 1850, complaining of violent pains in both ovarian regions, which pains had originated during the last insufficient menstrual flow, and had remained after its cessation. She also complained of a good deal of pain at the pit of the stomach, the intensity of which was said to be proportional to that experienced in the ovarian regions, increasing and diminishing as the latter increased and diminished; but the pain at the præcordial region was relieved by pressure; while this measure increased that in the ovarian regions. There was great lowness of spirits, involuntary tears, invincible drowsiness, and a sensation of stupidity on waking. No uterine symptoms, no leucorrhœa, no fever or thirst.

I considered the case one of sub-acute ovaritis, and I ordered five leeches to each ovarian region, to be followed by the constant application of thin linseed poultices, and the compound camphorated mixture to be taken.

22nd.—The patient had been much relieved by the treatment; the pains, instead of being continued, had become intermittent, occurring two or three times a day; she still continued drowsy. I ordered the mercurial ointment to be made use of as in the preceding case, an opium plaster at the pit of the stomach, and myrrh and aloes pills to be taken a day or two previous to her epoch.

27th.—After taking the pills, which procured three motions, the patient menstruated more freely than the last time, and with more than usual forcing pains. Two more pills taken two days after the first, produced the same effect, and since menstruation is over, there is much less pain.

Feb. 3rd.—I gave her sulphate-of-iron pills, and a few weeks after, as menstruation had become normal, and the patient's health had so much improved, she was discharged from the dispensary. In this, as in several of the preceding cases, the patient complained much of feeling unusually heavy, dull, and stupid, with a great tendency to sleep; a state of the nervous system which frequently expresses the physiological or morbid action of the ovario-uterine apparatus on the brain. As it is convenient to express this in one word, I call it pseudo-narcotism; and it is right to remark that I have noticed this state in connexion with sub-acute ovaritis, in women who did not habitually experience this pseudo-narcotism at the menstrual periods.

Case 6.—Jane A——, twenty years of age, of a sanguine complexion, reddish-brown hair, and blue eyes, tall and stout, is a washerwoman. After two years of great suffering, she menstruated at eighteen, the flow appearing regularly from the first every three weeks, lasting three or four days; was of a trifling amount, and never missed until marriage, which took place at nineteen. Two months ago she miscarried, lost a great deal of blood, and since then has not menstruated. Admitted Jan. 13th, 1850, at the Paddington Free Dispensary. The patient complained of great forcing pain in both ovarian regions. She said the pain was increased by walking, by pressure, and by going up and down stairs. She also complained of severe *forcing* pain at the nipples, which was increased by the ovarian pains, as well as by anything hot she might take. There was no appearance of disease in the breasts, no leucorrhœal discharge, nor, on a digital examination, any evidence of uterine disease. I ordered the treatment prescribed in the former cases. The patient got gradually better, and at the next period she menstruated regularly.

Case 7.—Emily B——, admitted to the Farringdon General Dispensary, October 27th, 1851. She was twenty-three years of age, of a sanguine temperament, with reddish hair and grey eyes, and unmarried. Menstruation first appeared at seventeen, and continued regularly every month; but for the last few months the excretion was very pale and scanty, and the last catamenial flow only lasted one day, and was attended by a good deal of pseudo-narcotism, leaving, without any known cause, a severe and constant pain in the right ovarian region, but during the day only; for when quiet in bed, the pain left her. The exertion of going up stairs increases the pain, likewise slight pressure on the right side, while great pressure on the left ovarian region gives no pain. Slight leucorrhœa; no fever; but the mouth looked as if painted with yellow dust; the tongue was furred, and the patient said she had been bilious for the last few days; the bowels were regular. I ordered an emetic at night, the compound camphorated mixture before mentioned, and carbonate of soda after meals; and the compound mercurial ointment to be applied in the usual way to the side affected.

Nov. 1st.—All pain and uneasiness had left the patient.

15th.—She returned on account of a cough, and I learnt that she had just menstruated; and that for many years the discharge had not been so abundant, of so good a colour, and attended with so little suffering.

In this amenorrhœal form of sub-acute ovaritis there was no chlorosis.

Case 8.—Anne B——, aged nineteen, with very dark hair, and eyes dark and lustrous, swarthy skin, and sanguine complexion, of average stature and size, and menstruated for the first time, without prodromata, at seventeen. Three months after its first appearance, the discharge re-appeared painfully, but with regularity, every fortnight, lasting three or four days, and was very abundant. Recently, after four months of amenorrhœa, menstruation returned of its own accord, much more abundantly, and with more pain, during which time, being exposed to wet, she caught cold, and was seized with violent pain in the right ovarian region, accompanied by considerable thirst, heat, and fever. Another gentleman had attended her at her own house, and ordered twelve leeches to the seat of pain, poultices, and some medicine; and after being confined to her bed for a fortnight, menstruation returned at the usual fortnightly period, with more clots and greater pain, and lasted seven days, instead of three or four.

On the 20th of February, 1850, she was admitted to the Paddington Free Dispensary. The pain in the right ovarian region, although much abated, was still considerable, and was exasperated by stooping, walking, or by pressure. No leucorrhœal discharge. I ordered the usual compound camphor mixture, the ointment, poultices, and two grains of sulphate of quinine, with two of extract of hyoscyamus, in a pill, every night; but before the treatment was begun, the patient again menstruated, and the function lasted with great pain for three days; and on its disappearance, a slight leucorrhœal discharge ensued. The treatment was then put in force, the local pains gradually disappeared, and on the 4th of April I heard that menstruation had re-appeared at monthly periods.

Aug. 11.—She applied again, for an attack of jaundice; and I learnt that she had not again suffered from pains similar to those which brought her before to the dispensary.

Dec. 1851.—Anne B—— again called, and stated that, during a severe cold, menstruation came on at the usual time, lasted eleven days, ceased by degrees; and that upon its cessation, the ovarian pains, bearable before, became intolerable, causing her to walk doubled, particularly when going up stairs. She could not wear her stays, pressure determining a darting pain.

It is interesting to observe how, in this patient, the menstrual function, which by the use of sulphate of quinine, I had brought to the four-weekly type, soon relapsed from the normal to the three-weekly, and then again from the three-weekly to the fortnightly, which it now adopts; and how, in close correspondence with these irregularities of physiological action, there is also a tendency to relapse into the morbid condition, which I think deserves to be called sub-acute inflammation.

Case 9.—Dr. Vinen, of Bayswater, requested me to see a patient of his, in September, 1849. Mrs. L—— was then twenty-eight years of age, with a pale complexion, middling stature, dark hair, and hazel eyes. She had first menstruated at twenty, but was always irregular both as to time and quantity, it being sometimes scanty, at others very profuse. Since marriage the function had become more regular, but was still variable in amount.

In the previous January she complained of acute pain in the right ovarian region. Two months after, consulting Dr. Vinan, he discovered a distinct swelling in that region, and, some weeks after, the same appeared on the left side, accompanied by great tenderness at all times, but particularly at the menstrual epoch. The catamenia then became more scanty, darker, and more painful than usual. There was dorsal pain and slight leucorrhœa. Twelve leeches had been applied, with but little benefit, but blisters had been more efficacious. When I saw the patient she was exhausted by continued suffering, and was at times affected with hysteria. Menstruation had not appeared for the last two months. Digital examination was painful both to the vagina and to the womb, which was somewhat swollen; there was acute pain on pressing in the direction of the ovaries, the right one being still swollen; both breasts were very painful. I ordered the treatment previously described.

On the 1st of August the patient was better; examination was no longer painful; pressure in the ovarian regions was less so; the womb was neither swollen nor painful, neither did it present any lesion when examined through the speculum. In addition to the previous treatment, I ordered cold-water injections to be made twice a day, per rectum, and twice a day a vaginal injection of two drachms of tincture of hyoscyamus in half a pint of tepid water.

The patient rapidly improved, lost all pains, and became stronger. She has had no relapse, but, although married several years, has never been pregnant.

Case 10.—Charlotte K—— called upon me October 18, 1849. She was about twenty-six years of age; her constitution being lymphatic, but her hair and eyes dark. In childhood she had several abscesses in one of her legs and groin. Menstruation appeared at fourteen, but at sixteen was suspended, from her catching cold; and when it did return it was three-weekly instead of monthly as before. It was either profuse or scanty, and preceded for a week by great pain in the ovarian regions. Pressure, walking, or stooping, aggravated this pain. This state lasting for several years, had brought dyspepsia, palpitation, hysterical symptoms, and there was often leucorrhœa.

Mr. Pughe, of Aberdovey, in North Wales, considering the case to be one of chronic ovaritis, sent her to me. Digital examination was so painful, that I contented myself with having ascertained that the vagina and neck of the womb were swollen, hot, and inflamed. Pressure on the ovarian regions was also very painful. Leeches had been applied to them a fortnight previously, and with great benefit; I therefore ordered twelve more to be applied, prescribing the usual treatment, with the addition of aloes pills, and cold-water injections per rectum.

Oct. 28th.—I was able to make a speculum examination, and ascertained that there was no ulceration of the womb, which I was led to expect from the persistence of many symptoms which usually indicate it. When the finger in the vagina was directed towards either of the ovaries, a sickening pain was determined; and when the left hand pressed moderately on the ovarian region, so as to press the mass of intervening tissues between both hands, the pain became intolerable.

This patient was for several months under my care. After each menstrual epoch, six leeches were applied to each ovarian region; when the leech-bites had healed, a blister was applied to the same part; and when these were healed, the same surface was anointed with mercurial ointment until the time when menstruation made its appearance.

Feb. 13th, 1850.—She was without pain or discharge, and menstruation had assumed its normal type, completely losing the prolonged pains by which it had been accompanied. In fact, she returned to Wales quite well.

(To be continued.)

CLINICAL REMARKS ON A CASE OF EMPYEMA.

By C. J. B. Aldis, M.D., F.R.C.P.

Benjamin H———, aged four, residing at Union-street, Pimlico, was admitted a patient of the St. Paul and St. Barnabas Dispensary, June 10, 1851. Is suffering from severe laryngeal symptoms, with croupy cough, dyspnœa, threatening suffocation; is much emaciated; perspirations; cervical veins greatly distended; lies on the right side; great tenderness on right side of the chest, which is larger than the left; intercostal spaces prominent; dulness on percussion; there is also a circumscribed tumour towards the margin of the ribs of the same side. During his illness, he brought up a large quantity of creamy-looking pus. The respiratory murmur is inaudible over the right thorax, but very distinct over the left, the intercostal spaces of which are more depressed than on the affected part, and the respiration is very distinct. Ailing eight weeks with cough and fever. I directed my attention more particularly to the laryngeal symptoms, which were most urgent. Two leeches to be applied to the right side; a mustard plaster to the throat; a grain of calomel every second hour; a draught containing tartarized antimony and nitrate of potash every second hour intermediately. The mother of the patient omitted to send for the medicine, as directed, until the next day, in consequence, no doubt, of having been informed by a medical man that the child was dying.

On the 12th, the child was better and continued to improve until July 23d, the laryngeal symptoms having been subdued. The same treatment was pursued until June 13th, with the exception of giving the calomel at longer intervals. On the 15th, the calomel was ordered to be taken every other night, with one drachm of castor-oil every other morning.

On the 23d of July, the tumour above alluded to began to increase, when a linseed-meal poultice was applied.

July 24th.—The tumour was opened by Mr. Morey, at my request; and puriform matter continued to flow for several days, which afforded much relief.

27th.—The cough still continues incessant, disturbing his rest; but the child bears his suffering remarkably well; and when examined, it lifts up the poultice to show the state of the tumour. To have a draught containing compound tincture of camphor and spirits of nitre.

The tumour subsided, but the intercostal spaces remained prominent, without elevation of the ribs on inspiration. It again increased, was opened on Aug. 21st, and a considerable quantity of purulent fluid was discharged for some time. The cough also is accompanied by a copious expectoration of creamy-looking matter. To have of mercury-with-chalk and compound ipecacuanha powder, each one grain, every night.

Aug. 25th.—To have a drachm of the mixture of the iodide of iron twice a day.

On the 27th, my colleague, Mr. Mackintosh, visited the case. The tumour again subsided.

Sept. 2nd.—Take of the infant's cough mixture, half an ounce; dilute sulphuric acid, half a drachm; of water, three ounces; two drachms every hour. Repeat the powder.

11th.—The swelling having returned, was opened, and purulent fluid continued to flow.

15th.—To have one grain of compound ipecacuanha powder three times a day.

Oct. 1st.—The child is much improved.

4th.—Diarrhœa. To have two drachms of chalk mixture twice a day.

10th.—Matter collecting again.

12th.—Tumour broke, and a considerable quantity of matter has been discharged.

16th.—Much sickness. To have a half-ounce effervescing draught every four hours.

31st.—Matter collecting again.

Nov. 5th.—Tumour broke on Sunday; discharge altered in character—more watery; expectoration much diminished; emaciated. Take of tincture of hops, sweet spirit of nitre, compound tincture of camphor, of each five minims, and half an ounce of water, every six hours.

From this time he greatly improved, and was able to go out early in the day in cold weather, when I frequently met him.

Dec. 24th.—Has gained flesh, and the right side of the chest has become contracted (an inch less than the left side) since the discharge ceased. Tubular breathing on the right side; vesicular on the left.

Remarks.—This is one of those remarkable instances of returning health in children sometimes observed, even when the prognosis is most unfavourable. In addition to the empyema, with dilatation of the right thorax, there were most severe laryngeal symptoms, great emaciation, profuse expectoration of purulent matter, and confinement to bed for nearly six months; the tumour having been opened three times, and burst twice, followed by contraction of the same side. The patient continues in a very satisfactory state up to the present time. A few years ago, a child was admitted, under my care, at the Surrey Dispensary, with a fluctuating tumour higher up in the chest than in the preceding case; symptoms of pleurisy were also present. After the dyspnœa was relieved, I transferred the patient to the surgeon. A fatal termination having occurred, a post-mortem examination was made, at which I was unable to be present; but the assistant informed me that the external swelling was an abscess, which, from absorption having taken place, all but communicated with the cavity of the chest containing fluid, in consequence of pleurisy. Now, supposing that in the latter case perforation of the thorax by absorption had supervened, and the tumour had been punctured, it might have been imagined that the external abscess was the result of empyema, which a post-mortem examination would have apparently verified.

ON AN

INTERESTING CASE OF GUN-SHOT WOUND.

By H. Parker Laurence, Esq.

Assistant-Surgeon second Belooch Battalion, Shikarpore, Upper Scinde.

As gun-shot wounds are at all times of more or less interest, and are seldom met with in "piping times of peace," I send the following. Its principal feature is, that the wounds were inflicted by two balls fired from one musket.

On the morning of the 1st January, 1852, a private of this battalion, supposed at the time to have been unsound in mind, contrived to secure eighteen rounds of ball-cartridge with ammunition, and having furtively possessed himself of the subedar's horse, took to amusing himself by galloping about the lines, and firing his musket in all directions On approaching the quarter guard, however, he was challenged by the sentry, a fine young man and good soldier. His challenge was replied to by a discharge from the musket, the rider galloping off immediately afterwards. This took place just before daybreak. I was quickly on the spot, as was Dr. Stocks, vaccinator in Scinde. We immediately set about examining the nature of the wounds, which were four in number, made in the lower third of the left arm; the two entering wounds were two inches or so above the elbow, one on each side of the humerus, and the exit ones directly over these, an inch higher up. About the edges of the latter were spiculæ of bone; there was considerable laceration of the soft parts, and a good deal of hæmorrhage, and the bone was evidently shattered to the extent of nearly two-thirds of its shaft. We were both of opinion that immediate amputation of the limb should be resorted to. He was accordingly put under the influence of chloroform; and whilst Dr. Stocks compressed the subclavian artery, I performed the circular operation at the upper third of the arm, about the insertion of the deltoid. There was little or no bleeding, and the brachial was the only vessel requiring the ligature. Cold-water dressings were applied, and the patient, who did not wake for good ten minutes after all was over, said he felt very comfortable. The ligature did not come away until the twenty-fifth day; no untoward symptom has appeared during the healing process. He is at present quite strong, and going about, and has the consolation of knowing that government will compensate him with a pension for the very unsatisfactory loss he has incurred whilst on duty.

THE POLICY AND PATHOLOGY OF INSANITY.

By Joshua Burgess, M.D. &c., London.

(*Continued from May No., p. 371.*)

Legal View of Insanity.

The law justly considers sanity to be the *rule*, and insanity the *abnormal* state of the human mind. A partial deviation manifesting insanity on any subject, is sufficient, in civil matters and affairs, although the mind may not be insane on every point, to constitute *an unsound mind*. Lord Lyndhurst says, "it seldom happens that a person who is insane displays insanity in reference to every question and every subject."[*] Many modes and circumstances conducive to the development of insanity frequently never occur, and remain dormant, and consequently the *moral act*, or *monomania*, may not be called into existence. Again, Lord Lyndhurst, in commenting on the judgment of Sir John Nicholl, argued concerning partial insanity, that "the mind is unsound, and not unsound on one point only and sound in all other respects, but that this unsoundness manifests itself principally in reference to some particular subject or person;" and "it was not meant that a person could be *partially insane* and *sane* at the same moment of time; to be sane, the mind must be *perfectly sound*, otherwise *it is unsound*."[†]

Dr. Prichard says: "It seems, on the whole, to be the settled doctrine of the English courts at present, that there cannot be insanity without *delusion*; . . . this is the doctrine of *partial insanity*; so that a man is supposed to be mad upon one point, and sane upon every other particular, a state in itself most incredible."[‡]

Thus it is argued by these authorities, that reasoning correctly on all except one particular subject, nevertheless did not constitute a state of *compos mentis*, and did not establish a sane mind.

But this is not admitted in criminal insanity, showing an incongruity and disagreement of the practice of the law in these cases, for the rule, if good for one, must apply to both; the laws of nature cannot be abrogated to suit legal *dogmas*, and unreal and artificial distinctions, when the high interests of moral and physical *death* are involved in the decision. A *little madness* deprives the lunatic of civil rights—of dominion over property, and its disposition—and annuls wills; whereas, to exempt from responsibility for crime, and cancel social obligations, the mind must be quite clouded—complete ignorance of *the knowledge of right and wrong, good and evil*, must exist; neither partial insanity nor delusions are admitted; the last, not *even when traced to the act*, if lucid intervals happen at the same time. Lord Hale says, there must be "total alienation of mind, or total madness, *de quibus infra;* this is that which, in my Lord Coke's 'Pleas of the Crown,' is called by him absolute madness and total deprivation of memory; . . . . if there be *lucida intervalla*, the madness, in that case, will not relieve from responsibility of felony or treason, if they be committed during that state."

This is illogical, and totally inconsistent with modern authorities, especially with Lord Lyndhurst's, since it makes insanity amenable to punishment and accountable for crime, in one instance, and, in the other, where much less insanity exists, removes the power to execute civil contracts, and the responsibility to perform civil offices: thus, insanity blended with crime (unless the insanity be of the most aggravated and æsthetical character) is punished with the severest and vindictive penalties of the law; and all other lunatics are absolved from liability to legal awards, and from right of legal appeal, carrying out Sir William Blackstone's doctrine, "furiosus furore solum punitur."[*] Sir Edward Coke says, "the execution of an offender is for example *ut pœna ad paucos, metus ad omnes perveniat;*" yet surely there can be no example and no warning given from the gibbet of an executed madman—a folly which was perpetrated in the case of Bellingham, and only narrowly avoided in the case of Hadfield. If Bellingham had been respited and placed under *surveillance* for a time, all doubts might have been solved, and all suspicion of a vengeful execution avoided—the more deplorable, connected as it was with the memory of a most gentle and amiable character, the late Mr. Percival. Lord Erskine, who was the first to advocate a milder code of insanity, says,—"I think, as a doctrine of law, the delusion and the act should be connected; . . . . in cases of atrocity, the disease and the act should be apparent." And again,—"The dominion of insanity . . . . annuls a man's dominion over property, dissolves his contracts, and other acts which otherwise would be binding in a civil sense; and *it takes away his responsibility for crimes*."[†] Haslam says,—"Incapability to the management of affairs is sufficient manifestation of unsoundness."[‡] Lord Thurlow says, in reference to civil contracts,—the making of *wills*, and the disposition of property—"the burthen of proof attaches to the party alleging such *lucid intervals*, who must show sanity and competence when the act was done, and to which the lucid interval refers; . . . . and the evidence . . . . should be as strong and demonstrative of such fact, as where the object-of proof is to establish derangement," and should not be restricted or limited to individual and particular acts, such as making a will, but comprehend all acts and conditions. In *criminal* cases of lunacy, its construction is limited and narrowed, and without any such rigid inquiry or investigation, and without any palliation, the lunatic is held responsible for a criminal act during a *lucid interval*. The man who makes a *will* may, grounded upon its inconsistencies, be found mad, and comparatively slight evidence of error will make him mad, and invalidate the will; but if he commits *murder*, the crime is not invalidated, but he is made responsible, and hung for it, making him more accountable and more rational at the moment of committing murder than during the act of devising property: one act essentially requiring the exercise of thought, attention, will, memory, and understanding, and the other their absence, and the presence of an excited, turbulent, and disturbed mind, in which there may exist neither *memory, will,* nor *understanding*.

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[*] Prichard on the Different Forms of Insanity, p. 16.

[†] Shelford on the Law of Lunatics, Idiots, etc., p. 46.

[‡] Prichard on the Different Forms of Insanity, p. 16.

[*] Sir William Blackstone's Commentaries, v. iv. p. 24 and 395. Windell's ed.

[†] Erskine's Speeches. Defence of Hadfield, p. 120.

[‡] Haslam's Jurisprudence of Insanity.

Again, in civil cases, for example in the making of a will, if folly and wisdom be mingled, yet the folly invalidates the instrument, and stamps the incapacity and insanity of the maker; but if he commits homicide, to invalidate his responsibility he must not possess a glimmering of consciousness, memory, or understanding, any knowledge of right or wrong, or any particle of reason, however small: *thus says the Law.*

However partial may be the insanity, or few and small the delusions, if the case be carefully observed and comprehended, the ingredients of insanity, even if they be diluted and obscure, may nevertheless be demonstrated *by the physiological tests* above suggested.

SIMULTANEOUS DISLOCATION OF THE HUMERI.

By Geo. Yeates Hunter, Esq., M.R.C.S.E.

I send the following case, thinking it may be interesting to many of the readers of The Lancet, because simultaneous dislocation of the humeri is a very rare occurrence, and because such an accident has recently given rise to some discussion.

I was called, on the 22nd May, between midnight and one o'clock in the morning, to Mr. S. M——, a builder, aged sixty-two, in robust health, and residing in —— street, Margate. On reaching his house, I was informed that before going to bed he had, according to his usual custom, gone down stairs to see that all was right, and to turn off the gas from the main; for which purpose he had entered the front kitchen, and not seeing a large Turkey carpet, which had been doubled up to be beaten, and which lay in his way to the gas-meter, he had pitched over it, and had fallen with great violence on the floor upon his extended arms. Upon running down to his assistance in consequence of his moans, his wife and two sons found him lying upon the ground, bleeding from his nose, and complaining of great pain, and entire loss of motion in his arms. They gently raised him, and conveyed him to his bed-room, and then immediately summoned me to his aid.

Having carefully examined him, I readily detected dislocation of each humerus into the axillæ, which I speedily reduced, first the left and then the right, but the latter with the greater difficulty. The shock produced by the fall, coupled with the loss of blood, had depressed the patient considerably, and placed him under favourable circumstances for the reduction of the dislocations, which I consequently accomplished with comparative ease.

When Mr. M—— fell, the kitchen dresser was at his right, some chairs at his left, and a chest of drawers, in front, against the corner or edge of which he hit his face in falling; but there is no appearance to justify the conclusion that he struck his arms in falling to the ground. I mention these particulars, because it is sometimes difficult to account for the force by, and the manner in, which dislocations are occasioned.

In conclusion, I am glad to say that the patient is going on satisfactorily and well.

MALFORMATION OF THE GENITAL ORGANS AND BLADDER.

By Benjamin Dulley, Esq., M.R.C.S.E. & L.S.A.

E. B—— was born on the 22nd December, 1851. At birth the umbilical cord was observed to be attached to the abdomen much lower than usual; and immediately underneath it was a granular-looking projection, very red in appearance, and about the size of half a walnut. Upon more minute inspection, this appeared to be the anterior part of the bladder, uncovered by the abdominal walls; it was open at its lower part, where the ureters might be observed with the urine dribbling away through them. The penis seemed as if it had been cut in two horizontally, and the upper part taken away. Prepuce wanting. The child thrived for some weeks, then gradually sank, and died April 17, 1852.

Post-mortem examination.—The body was greatly emaciated; apparently there was no navel, the umbilical cord having been attached immediately above the projecting bladder; but the remains of the umbilical vein were observable upon opening the abdomen, the contents of which appeared in a very healthy and natural condition, excepting the bladder, which was placed just above the symphysis pubis, and exterior to the integumentary covering of the bowels, small in size, and about the shape of a large peach-stone, of a corrugated, granular florid appearance; the ureters were larger than usual, and a probe introduced into them from the kidney made its exit at the lower part, on either side of the projecting bladder, where the urine had been observed to dribble away; and between these openings was that of the bladder itself. The penis had the appearance before described; there was no urethra, but a slight groove extending along its dorsum.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON, &c.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tum aliorum proprias, collectas habere et inter se comparare.—Morgagni. *De Sed. et Caus. Morb.* lib. 14. Prœmium.

UNIVERSITY COLLEGE HOSPITAL.

Case of a Cyst filled with Watery Fluid projecting into the Anterior Chamber of the Eye; Punctures; Recovery with Perfect Sight.

(Under the care of Mr. Wharton Jones.)

We had some time ago the pleasure of putting upon record a case of luxation of the lens treated by Mr. Dixon at the Royal Ophthalmic Hospital, Moorfields, and we may say that cases of the same kind have since occurred at the Charing-cross Ophthalmic Hospital. It would appear that the diagnosis of these luxations is not surrounded by much difficulty, but the following case of cyst of the eye, under the care of Mr. Wharton Jones, will prove that such cysts may closely simulate a luxated lens. Mr. Jones's case will also show how long after the injury the cysts may make their appearance, and illustrate in a very striking manner the best mode of treating these cases.

Edward R———, aged five years, was admitted September 8th, 1851, under the care of Mr. Wharton Jones. About a year and a half before admission, the child accidentally thrust the point of a fork into his left eye, and was immediately taken to the Charing-cross Hospital, where he remained three weeks. When discharged, the boy, according to his mother's statement, saw as well as ever. From that time, the eye continued perfectly well, until about two months ago, when inflammation, with intolerance of light, and much lachrymation, came on. No advice was sought on this occasion, until after the lapse of six weeks, when the child was again taken to the Charing-cross Hospital, but only attended there twice as an out-patient, about ten days before he was seen by Mr. Wharton Jones. The mother then consulted a private practitioner, who told her that the case was a serious one, and gave her some dark-coloured drops. Since then, the boy had not been further attended to.

On admission at University College Hospital, there was observed in the anterior chamber a large transparent body, having a great resemblance to the crystalline lens,—so much so as to give rise to the momentary impression that the case was one of dislocation of that body into the anterior chamber. On a little further examination, however, Mr. Cadge, who was officiating at the Eye Infirmary in Mr. Wharton Jones's absence in the country, recognised the body to be a watery cyst, with a very delicate wall, protruding from the posterior into the anterior chamber, the lower part of the iris having been detached from its ciliary connexion, and pressed upwards.

The child was admitted as an in-patient, and Mr. Cadge proceeded to puncture the cyst through the cornea, and evacuated a considerable quantity of fluid, whereupon the delicate wall fell collapsed to the bottom of the anterior chamber. After this operation, the detached portion of the iris regained, from day to day, more of its natural position, and the pupil its form and size.

When Mr. Wharton Jones resumed his duties, at the end of September, the cyst was still collapsed, and the pupil of natural size, though its lower margin was a little out of the circular line. A small opacity at the inferior edge of the cornea, close to its junction with the sclerotica, indicated the place where the wound by the fork had been inflicted.

In the course of two or three weeks the cyst began to fill again, and in the beginning of November it had attained so considerable a size, that Mr. Wharton Jones considered it advisable to repeat the operation of puncturing it through the cornea. On the evacuation of the fluid, the cyst fell collapsed to the bottom of the anterior chamber. For two or three days after the operation, the eye remained free from inflammation; but at the end of that time some redness of the conjunctiva, with intolerance of light, came on.

Before the occurrence of the inflammation, directions had been given to allow the child to be taken home, and to attend as an out-patient. After the appearance of the inflammation, however, the directions were countermanded; but from some misunderstanding the boy was removed, and not brought back as an out-patient for a week or ten days. The eye was then (Nov. 17th) found to be very much more inflamed and intolerant of light; whilst there was, at the bottom of the collapsed cyst, a small quantity of yellow matter or lymph, with a minute vascular ramification upon its anterior wall.

The child had been suffering considerable pain, and was ordered to be immediately re-admitted as an in-patient; but he was not brought to the hospital for several days, when the eye was found much worse. Four leeches were immediately applied, followed by warm fomentations. The patient was given one grain of calomel, and two of Dover's powder, at bed-time; and a laxative draught the following morning.

In the course of the next ten days, the application of leeches was repeated twice, and the child had half a grain of calomel, with one of Dover's powders, three times a day. After this the inflammation began to abate. About ten days after re admission, the matter of the cyst worked its way outwards at the junction of the cornea and sclerotica by a narrow passage, in a manner similar to what may sometimes be seen in cases of iritis with abscess at the ciliary margin of the iris.

Evacuation of some of the matter having in this manner taken place, absorption of the rest went on in proportion as the inflammation subsided.

Eighteen days after admission, the quantity of puriform lymph in the cyst had very much diminished. The latter at its upper part was collapsed, and the pupil no longer distorted by the pressure of the cyst.

Twelve days after this, the white of the eye was free from redness, except inferiorly, where a few vessels were seen running to the lower margin of the cornea, exactly at the sight of the original wound, and opposite the cyst. The quantity of matter in the latter had very much diminished, but there was still a small speck of yellow matter, apparently in the substance of the marginal part of the cornea. The wall of the cyst was collapsed and atrophied. The pupil of full size and natural form. Vision quite good.

Jan. 5th, 1852, about seven weeks after re-admission: the patient continues to do well, but absorption is proceeding rather slowly. He has taken no medicine for the last month. To take half a grain of calomel three times a day. The child took the powders for nine days, when it was found that the absorption of the matter had thus been accelerated. The mercury was then omitted.

Fifty-eighth day.—A small yellow speck of matter at the margin of the cornea, is all that remains; but there is a greyish streaked opacity on the posterior surface of the cornea, below the level of the pupil, which appears to be the atrophied remains of the cyst adherent to, or in close contact with, the cornea.

Sixty-third day.—The grey opacity on the posterior surface of the cornea is very much diminished, so much so that the iris can be partially seen through it. The small yellow speck at the margin of the cornea much the same. Sight perfect.

In a clinical lecture in which the case just reported was commented on, Mr. Wharton Jones observed, that for the purpose of facilitating the diagnosis of such cases, he had given in juxtaposition, in plate iv. of his work on "Ophthalmic Medicine and Surgery," first a figure representing a case of hydatid in the anterior chamber; second, one representing a case of dislocation of the lens into the anterior chamber; and a third representing a case of cyst similar to that under consideration.

Mr. Wharton Jones observed that in cases of cyst, evacuation of the fluid by puncture was the only admissible operation, and reference was made to the disastrous results of cases in which the cyst was at once removed.

Mr. Wharton Jones particularly dwelt on the case of R—— as affording an interesting illustration of some points in the history of inflammatory exudations, their absorption in proportion as the inflammation subsides, and as presenting a good example of the obliteration of cysts.

Successful Rhinoplastic Operation.

(Under the care of Mr. Erichsen.)

Autoplasty has of late years gained ground in this country, and the more this branch of surgery is practised, the more is it likely to win favour, both with surgeons and patients. The latter are apt to be extremely grateful for any procedure which is calculated to improve personal appearance; and as gratitude is not a very common article, practitioners are quite correct in endeavouring to carry out and improve the various methods of autoplasty which have been proposed. We should, however, not allow ourselves to be deceived, especially when glancing over the splendid work of Jobert de Lamballe, and we should recollect that failure, owing to various circumstances, is often met with, and that antoplastic operations require an amount of neatness, dexterity, and patience somewhat beyond what is found sufficient in the ordinary run of practice. We have seen many little flaps which were expected to take root and flourish, slough away, to the great annoyance of the surgeon; and as regards rhinoplasty, we have observed two or three noses, carefully built up by very skilful hands, crumble down and disappoint the most sanguine expectations. But failure is far from being the rule; Mr. South, for instance, succeeded a short time ago in grafting a becoming nose, from a flap taken on the forehead, upon a sailor who had lost his own from lupus several years ago; and we shall now briefly allude to another case, lately under the care of Mr. Erichsen, in which a very excellent substitite for a nose, destroyed by the same disease which befell Mr. South's patient, was afforded by the frontal method of rhinoplasty. Here is the case, as noted by Mr. Turle, house-surgeon to the hospital:—

Thomas B——, aged twenty-two years, a carpenter, was admitted in November, 1850, with tubercular lupus exedens of the face, which was arrested by opiate lotions, blackwash, and the internal administration of the iodides of mercury and arsenic. The patient was re-admitted on January 19th, 1852, under the care of Mr. Erichsen, the disease being completely arrested, but with considerable deformity. The apex, alæ, and septum nasi were destroyed, so that a single aperture led into the nasal cavity, the bones being at the same time flattened and depressed, with great protrusion of the upper lip. The patient's general health was, however, very good.

Mr. Erichsen, considering that much of the deformity might be remedied by a rhinoplastic operation, proceeded, on the 21st of January, in the following manner. A paper pattern, cut from a gutta percha model of a well-formed nose, was placed on the forehead, and its outline traced with compound tincture of iodine. After this preliminary step, chloroform was administered, and Mr. Erichsen then carried his incision along the outline just marked, and reflected the flap, after having dissected it off the cellular tissue situated between the occipito-frontalis and pericranium, arterial hæmorrhage being in the meanwhile arrested by cold applications. The flap was then replaced on its original site, wet lint being inserted between it and the areolar texture, and Mr. Erichsen proceeded to pare the remains of the old nose, the most prominent portion of the bridge having escaped destruction. The operation was at this stage suspended for about twenty minutes, owing to the hæmorrhage; wet lint was diligently applied, and controlled the bleeding, the patient being all the time quite insensible, from the inhalation of chloroform. The flap was now twisted on its peduncle, and brought down over the nasal region, its edges neatly adapted to the pared surface, and secured by three sutures on each side. A pledget of lint dipped in oil and well squeezed, was then lightly introduced beneath the flap, and water dressing applied to the frontal wound. The patient was now removed to a private ward, where an equable temperature was carefully preserved night and day. He slept well, and on the next day no discoloration nor loss of temperature could be discovered in the new nose; the face was kept clean, and all disturbance of the flap carefully avoided.

On the fifth day after the operation, sensibility was found to exist in the transplanted structure, the patient accurately referring to the part touched, though his eyes were bandaged. During the next three weeks he continued to progress favourably, apparatuses of various kinds being from time to time applied to elevate the apex and compress the sides, the wound of the forehead going on very well.

About one month after the operation, Mr. Erichsen pared the inner surface of the apex of the new nose, and made an incision through the entire substance of the upper lip, on either side of the mesial line. The frenulum was then divided, and the piece thus obtained (the skin having been removed from its surface) was raised to form the new columna nasi, and kept in position by a pin and suture. The edges of the lip were then approximated in the same way as is done with common hair-lip. About a week after this, the adhesion between the columna and inner aspect of the tip of the new nose having given way, the surfaces were pared, and the columna re-adjusted, it being retained by pins passed through the sides of the nose. Six days after this procedure, the pins were removed, the columna seemed adherent, and was kept well supported by strips of adhesive plaster.

On the fifty-fourth day after the principal operation, the nose had assumed a natural shape, except a little bulging of the sides towards the upper part; the wound on the lip was scarcely visible, and that on the forehead quite cicatrized. The nares were carefully plugged with oiled lint, and sixty days after the rhinoplastic measures were first adopted, the man was made out-patient. He presented himself again, one month after his discharge, much improved in appearance: the nose was of good shape, the nares large (in some cases which we have seen there was much difficulty in keeping the nares patent,) and the columna in its proper position. The line of incision along the left side of the nose was nearly obliterated, that upon the lip scarcely to be detected, and the wound in the forehead much smaller. The patient is not only well contented, but highly pleased with, and evidently proud of, his new nose, which is greatly admired by his friends.

LONDON HOSPITAL.

Cases of Urinary Calculus in the Female; Lithotrity and Lithotomy.

(Under the care of Mr. John Adams.)

We had, a short time ago, to record cases of urinary calculus in little girls, who were operated upon by Mr. Poland at Guy's Hospital, and by Mr Ward at the London Hospital. It will be recollected that both surgeons removed the calculi after crushing them, the only difference in the two cases being that the first required an incision of the meatus, and the second no measure of the kind

In our remarks on these cases, we alluded to the cause assigned by Sir Benjamin Brodie for the frequent calculous concretions in boys of the labouring classes; and we observed that the explanation was extremely satisfactory, but that it left us still in the dark why little boys should be so much more obnoxious to the disease than girls. The question is the more difficult of solution, as we are told by authorities on the subject (Mr. Coulson being one of the latest,) that calculi are rare in females, because they lead a more regular life than the other sex. Now it is plain that up to the tenth year children of either sex lead pretty well the same kind of life, so that the explanation is hardly satisfactory. We would even venture to say that it does not apply any better to grown-up women; for it is well known that in this metropolis intemperance is pretty rife among the females of those very classes who are in the habit of applying to hospitals; and yet how few cases of stone are seen in the female wards.

It is probable that in not a few instances calculous concretions are expelled before they have attained any inconvenient size: thus Mr. Coulson says very justly, p. 385 of the last edition of his work on the "Diseases of the Bladder:" "In females stone is not of frequent occurrence, ... and when calculi do exist, in consequence of the shortness and dilatability of the urethra *they are easily passed.*"

We have of late had ample opportunity of watching the practice pursued in hospitals in cases of calculus in the female, as Mr. Adams has recently had under his care a woman and a little girl who were both affected with stone. It will be seen by the following details that the means likely to answer best, is a combination of dilatation of the urethra and lithotrity; and actual lithotomy, if crushing is not practicable. The great fear of the surgeon in such cases is, of course, to burden his patient with incontinence of urine after he has freed her from the pain and inconvenience of the calculus; but it would appear, from the cases which we have already recorded, and those which we are this day presenting to our readers, that dilatation and incision of the urethra may be resorted to without leaving behind such an unpleasant sequela as incontinence. That chloroform is a great blessing, is especially apparent in cases of this kind, for it saves pain, and frees the patients from those harrowing feelings which females must inevitably experience in pelvic operations.

The first was the case of a little girl, under seven years of age, who had laboured under severe symptoms of urinary calculus for several months. On sounding, Mr. Adams detected a large calculus, and the sensation conveyed to the instrument led to the impression that at any rate the envelope of the stone was soft, whatever might be the character of its interior. Mr. Adams therefore determined to see what could be effected by dilating the urethra, and afterwards crushing the stone and removing it piecemeal. It was evidently impossible to remove a calculus of the size of the present one entire through the urethra, however much that canal might be dilated, nor was it probable that, even with an incision, so large a calculus could be taken away without such mischief to the soft parts as would lead to incontinence of urine.

Dilatation was therefore commenced by the aid of Weiss's dilator; and when this had been accomplished, so that the point of the forefinger could be passed into the bladder, a pair of strong forceps was introduced, the stone crushed, and many of its fragments removed. From time to time, pieces of calculus were in this manner taken away; and although considerable irritation of the bladder succeeded the first crushing, yet no serious injury arose.

After some time, it was found that a large lump of stone still remained; and as this could not be readily crushed by any of the ordinary instruments, Mr. Adams determined to seize it, and remove it entire. There was no difficulty in laying hold of the fragment by means of a pair of long-shanked forceps, made for the purpose by Weiss. The stone was thus caught, and found too large to pass the urethra. Mr. Adams therefore made a slight notch, first on the left side of the urethra, another on its upper part, and with no great difficulty extracted a very large fragment. The bladder was now carefully syringed; and, on exploration, no vestige of the stone could be felt. The child has left the hospital completely cured, and with no incontinence of urine whatever.

The second case was that of a woman, aged forty-eight, who had suffered under symptoms of calculus in the bladder for twelve months. In this case the pain was unusually severe.

It was proposed in this instance, by Mr. Adams, to dilate the urethra, with the view of crushing the stone and removing the fragments without incision; but in consequence of the irritability of the bladder, the dilatation could not be accomplished readily. Mr. Adams therefore determined to perform lithotrity without attempting dilatation any more.

The woman was placed on the operating-table, narcotized by chloroform, and tied in the usual manner. The ordinary lithotrite was introduced, but it repeatedly glided off from the surface of the stone, the latter thus evading the action of the instrument. Mr. Adams then tried the forceps, but could not crush the stone with it. He therefore brought the latter forward to the urethra, and with a straight, probe-pointed knife, cut the canal, and succeeded, by using some force, in removing a large-sized calculus.

The woman went on pretty favourably, with the exception that a slight return of irritation occurred, which was clearly traced to a large fragment of stone remaining in the bladder. This, however, escaped in a short time, and all uneasiness subsided. The patient can now (four weeks after the operation) retain her urine for many hours together.

It will be perceived that the management of these two cases was essentially different. The little girl was freed from the calculus by lithotrity at first, and subsequently by an incision into the urethra, necessitated by the considerable size of a fragment. The older patient, on the other hand, presented the very rare occurrence of *bonâ-fide* lithotomy in the female—if this name can be given to the division of the urethra, the neck of the bladder not having been incised. These cases offer another proof that the rules of surgery must ever be modified according to circumstances, and that judgment, determination, and fertility of resources, are the great characteristics of the good surgeon.

ST. GEORGE'S HOSPITAL.

Supposed Disease of the Hip-joint. Death from Meningitis. Autopsy.

(Under the care of Dr. PAGE and Mr. CUTLER.)

SOME authors reject altogether the term coxalgia, as not being sufficiently definite; but there may certainly be pain in the hip-joint independently of any rheumatic or other inflammation. The pain may be purely neuralgic, or else sympathetic, as we find it in the knee-joint when the hip is actually affected. There may likewise exist a morbid state of the cerebro-spinal axis, giving rise to hysterical phenomena, which latter make the patient fancy that there is pain in the coxo-femoral articulation. The word coxalgia, though certainly not very precise, may perhaps, be used when our knowledge of the nature of the affection is so vague, that we have, in some degree, a right to use a vague term. However this may be, we regard the case which we shall presently relate as one in a thousand, since it has afforded an opportunity of judging of the perfect soundness of a joint in which the patient had experienced more or less pain *for eight months.* Seldom does an hysterical case stand out so patent as this, and we hasten to lay the details before our readers, as noted by Mr. Holmes, surgical registrar to the hospital.

The patient was a woman, twenty-five years of age, of dark complexion, and of bilious habit, who was admitted August 27th, 1851, under the care of Dr. Page, complaining of pain in the hip, which was thought to be the result of chronic rheumatism. There were also some symptoms of phthisis, the apex of the right lung being especially consolidated. The treatment adopted was principally of a soothing nature, (hyoscyamus and paregoric at night, &c.,) and it was supposed at first that no serious disease existed in the hip; but as the pain was not relieved, she was transferred, on the 22nd of the following month, to Mr. Cutler's care.

The symptoms at that time were those of acute inflammation of the hip-joint: some pain on moving, startings of the limb, especially at night, &c. Mr. Cutler ordered four grains of iodide of potassium, with ten of liquor potassæ, to be taken three times a day in camphor mixture, and a blister to be applied and repeated. The symptoms, however, increasing in severity, an issue was put in over the trochanter, and kept open. Opium was given at night, which produced sleep, and under this treatment she slowly improved.

As, however, there was still a great deal of pain on motion, the patient was kept in bed, and compound steel pill given for a short time. But this was soon omitted, as was valerian mixture, which was subsequently ordered, neither of these agreeing with her.

In the month of February, 1852, the patient became much better, so that it was thought advisable to heal the issue; but as she still was unable to move without pain, she had not left her bed on the 16th of March, when the attack set in which proved fatal to her.

This began with pain in the head, low delirium, and wakefulness. As there had always been a suspicion that the case was complicated with hysteria, it was hoped that these symptoms were not indicative of any serious mischief. A blister was applied to the back of the neck, morphia given at night, and on the 20th, when the restlessness, moaning, &c., had rather increased, the compound mixture of valerian was ordered. The head symptoms, however, became more decided, the eyes did not act consentaneously, the left pupil was dilated and insensible, the other natural; the features were drawn to the right side, and the tongue pointed to the left; pulse quick and weak. On the 22nd, six days after the cerebral attack, the urine had to be drawn off, the features were somewhat sunken, the pupils remained as before, and the strabismus continued.

Dr. Page, who saw her that day, prescribed stimulants and wine-and-water occasionally. The symptoms were never mitigated in the slightest degree, except that she became at times more quiet. She was partly sensible, almost up to the last, and could be roused to answer questions. On the day of her death, great difficulty in swallowing came on, and there seemed also to be some dyspnœa; the breathing was loud and stertorous, but the pulse remained regular.

The post-mortem examination was conducted by Dr. Ogle, conservator of the museum, and is recorded as follows:—The body is in excellent condition and well made; towards the left glutæal region was the indication of a seton, and of a blister behind the neck. A bursa over the trochanter of the left femur was full of thick curdy matter, and had a very vascular lining. The hip-joint contained healthy synovia, and all the parts entering into the formation of the articulation were in a *perfectly sound state.* On opening the cranium the meningeal veins were observed to be much congested; but the membranes themselves on the upper surface of the brain, were healthy. At the base of the cerebrum, however, the arachnoid covering the medulla oblongata, the under surface of the cerebellum, and the pons Varolii, was much thickened, and even opaque. Under this part of the membrane, recent fibrinous exudations existed. The entire cerebral mass was somewhat soft, its vessels full, and forming puncta on section. The ventricles were filled with clear fluid, and in the meshes of the choroid plexus, small deposits of yellow, miliary-looking, scrofulous matter was found. In the centre of the middle lobe of the brain, on the left side, there was a small rounded mass of yellow tubercular deposit, about the size of half a pea. The lungs contained a great number of miliary tubercles, and in the small intestines several of the solitary glands presented small yellow specks of fibrinous exudation. The liver was coarse, and of nutmeg colour, and yellow tubercular matter was found in the kidneys. The uterus was healthy in all respects, but the extremities of the Fallopian tubes were adherent to the ovaries, and contained much thick, curdy, scrofulous matter.

Here was then a *perfectly sound* joint, which must either have been the seat of simple neuralgia, or, as is much more likely, merely hysterically affected. And we may repeat, that it is but seldom that positive proof of the soundness of the joint can, in such instances, be obtained. This will show that physicians are far from being wrong when they ascribe, in cases of this description, the whole ailment to an hysterical affection, and treat the patient according to this opinion.

Hernia of the Cæcum and its Appendix; Strangulation; Foreign body in the Vermiform Process; Removal of the latter; Death; Autopsy.

(Under the care of Mr. TATUM.)

HERNIA of the Cæcum, especially in a young subject, is not frequently observed. This displacement is generally held to be of a serious kind, as being very liable to strangulation, and interfering materially with the free passage of the alimentary mass. But it will be seen by the following details that a very hazardous complication may accompany such cases—viz., the passage of a foreign body into the appendix vermiformis, and the ulceration of that process from pressure within and without. We may state in passing that a patient died lately at the Royal Free Hospital under the care of Dr. Brinton, in whom a gall-stone found its way into the appendix. Mr. Tatum's case, as noted by Mr. Holmes, registrar to the hospital, runs as follows:—

Edward D——, aged fourteen, was admitted April 14, 1852, under the care of Mr. Tatum, with symptoms of strangulated hernia. He seemed to have been subject to rupture all his life, and had worn an ill-fitting truss, which had occasioned much induration and ulceration of the integuments. This truss had been laid aside for about the last year. The tumour in the right side of the scrotum had become suddenly larger about two days before his admission, and the bowels had not acted since the previous morning; he had occasionally been sick for the last two days; the tumour was exceedingly painful, and the abdomen very tender.

Mr. Tatum performed the operation at about ten o'clock in the evening; he judged it necessary to open the sac, and found it to contain omentum as well as intestine. The parts lying in the sac were—1, a knuckle of small intestine, which seemed to have descended more recently than the other portion of the bowel; it was not much congested, and had not contracted any adhesions; 2, the termination of the small intestine (which was continuous with the former piece. but separated from it, in the order of dissection followed during the operation, by omentum,) and the commencement of the large, as far as the beginning of the ascending colon. These latter portions had contracted adhesions to the sac; and on these being separated the appendix cæci was found to be excessively dilated (so much so as easily to admit the fore-finger,) and a hardened mass of fæcal matter was contained in it, and slipped about its cavity.

On examining the surface of the appendix, pus was seen exuding from it, which, on more accurate inspection, evidently came from the inside of the process. through two or three small perforations which existed in it. Under these circumstances it was decided to remove the appendix, and a ligature having been tied around its base, it was cut off, and the ligature left in the wound.

The omentum was in several places so consolidated that two pretty large portions were included in ligatures and taken away. The stricture was by no means tight; and after a very slight incision of it, the bowel was with much difficulty returned.

Next day the patient was very delirious, tongue exceedingly foul, with thick fur, pulse very quick; he complained of great thirst; bowels not open. frequent vomiting. Mr. Tatum ordered three grains of calomel to be taken at once, and two grains every sixth hour: brandy and citrate of soda. On the following day the boy was much better; he had not been sick, and had less pain in the abdomen. which, however, was still very tender. The bowels had been open on the previous night, the evacuation being natural. The gums were already slightly touched; he was therefore ordered one grain of calomel and a quarter of a grain of opium every six hours, with strong beef-tea.

On the fourth day, the symptoms continued much the same, except that the pulse was exceedingly weak, so as to be hardly perceptible; he had been sick several times during the morning, but had slept a good deal. Two grains of calomel. and one-sixth of a grain of opium, every sixth hour. Saline draught, with three drops of hydrocyanic acid at the same intervals. On the fifth day, the sickness and pain in the abdomen occurred more violently, and the patient died at five o'clock in the afternoon.

Post-mortem Examination—Body in good condition, scrotum much enlarged and indurated; there is a sloughy wound caused by the operation for strangulated hernia. The abdominal cavity contained a great quantity of yellow fluid, with shreds of recent lymph floating in it. The appearance of the intestine generally was pale, but not so the lower part of the ilium, cæcum. and ascending colon. A certain amount of redness and vascularity, though not universal, existed at the lower six inches of the ilium, which was placed about opposite the internal inguinal ring. The coats of the cæcum and ascending colon for about four inches, were of a deep-red colour, thickened and hardened. Connected intimately with them, posteriorly, was the great omentum, indurated, hypertrophied, and of the same unnatural hue. Two ligatures depended from the shreddy omentum, and another was tied round the upper part of the appendix cæci, which process had been removed during life. On laying open the scrotum, by extending the incision made at the operation, the skin of that receptacle and the hernial sac were found of great thickness and very dense; the internal surface of the sac was covered by lymph; it contained coagulated blood, and serum strongly tinged with the same fluid. The spermatic cord was also invested by lymph; the testis healthy, and contained in the sac of the tunica vaginalis, which latter was not obliterated.

KING'S COLLEGE HOSPITAL.

Simple Sarcomatous Tumour in the Axilla; Spontaneous Cure by Disintegration.

(Under the care of Mr. FERGUSSON.)

SCROFULOUS enlargement of lymphatic glands is an affection, as every one knows, very frequently met with among the ill-fed, ill-clothed, and ill-housed children of our labouring classes: and it is interesting to observe how rapidly the health of such children improves. by very simple treatment, when they are admitted into any of our charitable institutions, where regular habits, good diet, and cleanliness perform wonders, provided the sap circulating in their little frames is not of too unhealty an origin. Cases of this nature it would be needless to place upon record; but, besides the ordinary low inflammation which causes enlargement of the lymphatic glands of young subjects, in *the upper half of the body*, (for the lower half is more apt to be similarly affected after the age of adolescence,) there is a rarer affection of these glands—viz, the development among or in them, of a simple sarcomatous tumour. Now it would appear that the diagnosis between enlargement of the glands and the development of a tumour, offers no great difficulty; as in the first case there is generally a chain of glands affected, and the inflammatory process, though slow, is always easily discernible; whilst in the second the swelling is more distinct and defined, and is generally independent of any inflammatory action.

But when it is ascertained that a tumour is actually developing, it may become a question whether such tumour be of a simple sarcomatous or of a malignant nature. When the patients are very young, there is certainly a strong presumption that the disease is not malignant, as it is extremely rare for encephaloid growths to spring up with children;* but cases may nevertheless occur, as will be seen by those which we subjoin, where a certain amount of doubt hangs over the diagnosis, and where the surgeon is reluctant in giving a decided opinion. We very frequently saw the child who is the subject of the first case, and well remember how difficult it was to account for certain unusual symptoms, with the supposition that the tumours were simple. But all doubts were raised at last by the crumbling down of the tumour, as will be seen by the following details obtained from Mr. Lawson, the dresser of the patient:—

Mary Ann S——, aged fourteen, a twin child, was admitted Nov. 16, 1851, under the care of Mr. Fergusson. She has enjoyed good health till within the last two months. The mother is free from disease. but the father appears to have had a malignant tumour in the groin, which was removed, but subsequently returned and caused his death. About two months before admission, the child observed, without any apparent exciting cause, a small lump in the left axilla, which increased very rapidly up to the present time, particularly during the last five weeks. When the swelling was first observed the child was in good health, but since that time she has been losing flesh very quickly.

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* There is now a girl at Guy's Hospital, under the care of Mr. Bransby Cooper, who is not quite fifteen years of age, and upon whom malignant disease has been developing for the last nine months.

There is now a large, smooth, indurated, somewhat conical tumour, occupying the whole of the axilla, extending backwards to the anterior border of the scapula, which bone is raised by the tumour, the latter reaching as far as the posterior border. The growth extends anteriorly to within an inch and one-third of the sternum, encroaching as high as the clavicle, and nearly as low as the nipple of the left breast. The base of the tumour is very large, and the swelling is quite immovable, dense, and faintly elastic. It is very tender to the touch, and there is a severe lancinating pain felt in it at all times, particularly during the day.

Four days before admission, Mr. Bradley, of Greenwich, who, with Dr. Beith, suspected the tumour to be malignant, made a puncture into it, which gave exit to some blood. The latter fluid was examined under the microscope by Mr. Busk, of the *Dreadnought*, who did not, however, discover any characteristics of malignancy. The child is very small for her age, of dark complexion, of that physiognomy which is called the senile, and likewise somewhat odd and strange in her manner and sayings. She was ordered wine and good diet, and Mr. Fergusson judged that no direct interference was necessary. The child was for the next fortnight kept under observation, the part was carefully poulticed, and the patient enjoined to observe perfect quiet.

The tumour was naturally looked upon as a glandular enlargement, or as a simple growth developed in or among the glands; but the fact of the father having died of malignant disease, the rapidity of the growth, the large size it had attained, the lancinating pains, the large veins permeating the integuments over it, and lastly, the blood which had issued upon puncturing, were well calculated to perplex, and to excite the suspicion that a malignant tumour had in this case exceptionally sprung up in a very young subject.

A fortnight after admission, hæmorrhage occurred from the ulcerated opening which had been left after the above mentioned puncture; this was not considerable, but it recurred ten days afterwards, when the child lost upwards of a pint of blood. Matters when on pretty favourably for the next few days, when a third bleeding came on. This attack, like the former, had come on suddenly, and the flow of blood had, as on previous occasions, stopped spontaneously. It was therefore surmised that the blood became collected in little cysts, which burst when they had attained their maximum of distension.

On the 28th of December, about five weeks after admission, a renewed attack of hæmorrhage was accompanied by vomiting, and the patient had at the same time an epileptic fit, the first since she was first received into the hospital. The mother stated, on being questioned, that the child was subject to such fits. Three days afterwards, there was again slight bleeding, but only to a few ounces.

On the 29th of January, about ten weeks after admission, the patient had gone on without much change, when she suddenly called the nurse, and said that there was a return of the hæmorrhage; but instead of blood, the discharge consisted of an offensive, grumous mass, which issued from the posterior of the two ulcers, whence the blood had before issued. This oozing continued several days; it was extremely fœtid, of dark colour, and in such quantity that it saturated everything that was near the tumour. About a week after this change, a fungous-looking mass protruded through the posterior opening: it had a dark-red appearance, and the swelling around it had become extremely tense. In the space of two days, this large fungus increased considerably in size, and looked as if it could be easily detached from the tumour. Mr. Fergusson, with a pair of forceps, pulled off the greater portion of the mass, this measure giving the girl no pain. On examination by the naked eye, and by handling, the substance resembled fibrine, being quite flaky, and easily torn; and, as Mr. Fergusson observed, it had much the appearance of the fibrinous layers taken from an aneurismal sac. The growth now seemed to have diminished.

A few days afterwards, while the nurse was washing the tumour, a mass came away about the size of a large pear, leaving a considerable wound from which it had escaped: the appearance was the same as with the one removed by Mr. Fergusson. It was very irregular in form, flaky, yielding, and arranged in laminæ. On a section being made, the remains of large cells were found, these being filled with a dark, thick substance, somewhat resembling half-coagulated blood. The chest now regained its natural appearance, all swelling having almost disappeared; the arm could be brought down to the side, and the scapula, which was before tilted up, now lay in its natural position. There remain, however, some enlarged veins on the chest.

The masses were submitted to Mr. Monckton for microscopical examination, and the following description of the tumour was obtained:—"The specimen is not properly speaking a tumour, but a mass of fibrine with blood-corpuscles entangled in some parts, no other tissue being mixed with it. It would appear to have been slowly effused, being laminated, and having a somewhat fibrous appearance, both to the naked eye, and under the microscope. The effusion seems to have been intermittent, the several parts having different degrees of consistence and forming distinct masses more or less globular."

The child now progressed very favourably, the parts took on a healthier action, and the patient regained to a great extent her former good looks. She was discharged a few weeks afterwards; and intelligence obtained from Greenwich, where the patient resides, proves that she continues in good health.

We have here a very good example of the disintegration and spontaneous extrusion of a simple tumour by suppuration and crumbling down: and it is very probable that the different attacks of hæmorrhage were owing to the giving way of small vessels during the destructive process going on in the tumour. A circumstance which rendered this case doubly interesting was the fact of another young patient, pretty similarly affected, having been admitted into the hospital almost at the same time. The diagnosis in this second case offered also a certain amount of difficulty; and a doubt, even now, hangs over the nature of the tumour, as the child has left the institution without any appreciable change having taken place in the growth. Here follow a few details of the case:—

Tumour in the Axilla.

(Under the care of Mr. BOWMAN.)

George I——, aged nine years, was admitted, Nov. 24, 1851, under the care of Mr. Bowman, with a tumour in the axilla. His father was scrofulous, and contracted syphilis before his marriage; he was cured of that attack, but had several subsequent ones. Four years after marriage his health broke down, the glands of his neck became swollen and ulcerated, and he was troubled with secondary sores. He had been salivated frequently, and the ulcers had assumed a very severe character. In this state the father died four years since: the mother is unaffected with disease, and the patient has four brothers who are all healthy.

The child was kicked by a horse, three years and a half ago, but none of his ribs or other bones were broken. A month after this accident, his mother noticed a small lump just in front of his left axilla, exactly on the spot where he had received the kick. It did not increase much at first, but the boy has had a cough, and a general disinclination to exertion, ever since: he has always had a large abdomen, and his penis is subject to swelling to a large size.

At the beginning of 1851, the tumour began to increase, and a scrofulous abscess formed at the same time in one of the glands on the right side of the neck; this last had increased to nearly the size of an orange by the end of May in the same year, when he was taken to St. Bartholomew's Hospital. The abscess was opened, and soon healed; the axillary tumour was painted several times with tincture of iodine, but did not decrease, and the boy was discharged at the end of six weeks. Since that time the tumour has grown rapidly, and is now three times the size it was nine months ago. The boy has in this interval been again admitted into St. Bartholomew's Hospital, where he was placed under the care of Mr. Stanley. He remained a few weeks, and was then discharged, the impression being that the tumour was of a scrofulous character.

State on admission: The patient presents a large, irregular, firm tumour extending over the thorax, from within half an inch of the sternum in front, nearly to the axillary costa of the scapula behind; and from the sixth rib below to two inches above the clavicle. It is not hard, like a carcinomatous tumour; it has not the feel of a fatty tumour, nor is there any fluctuation; it is firm, inelastic or nearly so, nodulated, and entirely movable on the parts beneath; it lies for the most part under the pectoralis major muscle, beyond the free border of which it bulges out, and is most prominent in the axilla. The tumour appears to be divided mainly in three lobes, by two vertical furrows. The first lobe, and that most external, occupies the hollow of the axilla, but does not quite fill it above, so that when the arm is slightly raised, two fingers can be introduced into that cavity above the tumour. The axillary glands, enlarged and somewhat indurated, are to be felt in this portion, towards the top of the tumour. The second lobe lies between the free border of the great pectoral and a line drawn vertically across the middle of the muscle; it is the least prominent of the three. The third lobe lies between the last and the sternum, and is larger than the middle but smaller than the external lobe. Besides these, there are several irregular offsets, the most conspicuous of which is a detached portion above the clavicle, apparently a mass of enlarged glands. The whole tumour is, as before stated, nodulated, and the skin is movable over it; the pulsations of its arteries are distinctly visible, and the whole is thickly covered with a network of blue veins. On December 2, Mr. Bowman examined the abdomen, and found the liver, as well as the spleen, very much enlarged, the latter being also indurated. The urine contains no albumen; it is very scanty, high-coloured, and loaded with phosphates and mucus. Both radial arteries are rather weak, but equal, and there is no numbness or tingling from the pressure of the tumour, either in the axilla, or in any part of the arm. The patient complains of pain when the tumour is handled; he has not been so well in his general health for the last few days, but is getting better. On the whole he is a healthy-looking, intelligent lad, with good colour, large bright blue eyes, and light hair.

The boy spent several months in the hospital, and no change occurred in the characters of the tumour; Mr. Bowman being of opinion that the latter is composed of enlarged lymphatic glands. The patient was finally discharged on the 1st of February, 1852, as it was not likely that the affection would terminate in the same manner as in the case previously related, since it is of a different kind, though situated in the same locality. Mr. Fergusson's patient had been affected with a *tumour* in or among the lymphatic glands, while with Mr. Bowman's the glands themselves are probably enlarged; not only because the boy is labouring under the scrofulous diathesis, but also on account of an injury which had acted as the existing cause. When the father's state of health is considered, it cannot be wondered at that the child should be strumous; and this case affords a very instructive illustration of one of M. Ricord's opinions —viz., that confirmed syphilis in the parent breeds scrofula in the offspring.

ST. MARY'S HOSPITAL.

Removal of a large Intra-Uterine Polypus.

(Under the care of Mr. TYLER SMITH.)

It is a melancholy fact that the greater number of tumours which affect the uterus are either of a malignant nature, or, if benign, beyond the reach of our art. Scirrhous tumours admit only of palliative means, fibrous growths are seldom amenable to treatment, and cauliflower excrescences return after removal. It is only with polypous tumours that operative measures are the most likely to benefit the patient; and even here great risks are incurred: for if we do not interfere, the patient may die exhausted by repeated attacks of hæmorrhage; if we remove the abnormal growth by excision, we have again to fear hæmorrhage; and if the ligature be used, there is the bugbear of purulent absorption and typhoid symptoms brought on by a continued fœtid discharge. Nor is it always easy to reach the pedicle of the polypus, when the tumour is attached to the fundus of the uterine cavity.

But the prognosis need not, in ordinary cases, be very unfavourable, for a great number of successful cases are upon record, principally where the tumour had sufficiently descended into the vagina, or where the os uteri had fully dilated, and the pedicle was not too thick. Nay, polypi of the uterus have been expelled spontaneously, like common moles, it being a beautiful provision of nature that the stump of the pedicle does not bleed considerably after the tumour separates in this manner. Nor has the source of the attacks of hæmorrhage, before the separation of the tumour, been as yet satisfactorily made out. Our knowledge is just as scanty touching the primary cause of polypous growths, though a speculation might be ventured, that both fibrous tumours and polypi are the result of an unemployed formative or generative force, excited at certain moments, and under certain circumstances. Moles are the imperfect consequence of the same force, impregnation having intervened; whilst polypi are, as is well known, independent of conception. It remains, however, remarkable, that the breasts sympathize with fibrous tumours of the uterus, but not with polypi; whilst the development of the latter are often accompanied by vomiting.

As regards the treatment of polypus of the uterus, it is satisfactory to note that this kind of growth is not liable to malignant degeneration, and that the stump of the stalk is not apt to reproduce a second tumour, after removal either by the knife or ligature. It is obvious, that, with intra-uterine polypi, the great object is to obtain a full dilation of the os uteri, and bring down the tumour, so that the operator may reach the pedicle. This dilatation has hitherto been mostly excited, in cases of this kind, by the use of ergot of rye, belladonna, or incising the cervix uteri, (Dupuytren;) but we have to put upon record a case, treated by Dr. Tyler Smith, where the powerful agency of galvanism was for that end called into request. This is, as far as we are aware, the first time that a galvanic current has been used for exciting the dilatation of the os uteri, and we are glad to say that the object thus sought was fully attained. The subjoined case, besides various points of interest, will likewise show how very low patients are sometimes brought by hæmorrhage; how long a considerable loss of blood periodically goes on without the real cause of such hæmorrhage being investigated; and what severe symptoms may accompany the piecemeal extrusion of a decomposing polypous mass. As regards the latter circumstance, we would venture to say, that whenever the scissors or the bistoury can, after the ligature is tightened, reach the pedicle, the latter should be cut, and the mass at once removed; for it should not be forgotten that a pretty large proportion of the fatal cases present unmistakable symptoms of purulent absorption (Dupuytren.) Excision with the knife would certainly be in greater favour, if the actual cautery could be brought to control the hæmorrhage; but how carry a hot iron within the uterus? Would not the platinum wire, heated by a galvanic current, be available in some of these cases. Mr. Marshall, of University College, to whom we owe this ingenious method of simultaneous section and cauterization, proposed the removal of uterine polypi by the electric cautery; and Dr. Tyler Smith was anxious to have employed it in the present case, but was deterred by the thickness of the pedicle, the smallness of the vagina, and the inclusion of the polypus within the uterus. This application of the electric cautery is very important; but we hasten, in the meanwhile, to relate Dr. Tyler Smith's case, where galvanism in another form has yielded such excellent results.

Elizabeth P——, aged thirty, unmarried, menstruated at fourteen, and had continued to do so healthily and regularly until three years since, when she began to suffer severe lumbar and hypogastric pain at the menstrual periods, with great increase of the catamenial flow. During three years, the menstrual discharge had been present three weeks and absent one, so that she had been drained of blood above three-fourths of the year for three years. In the last three months, the discharge had been very profuse and almost constant. She was thus reduced to a state of great anæmia and weakness, the skin and external veins being quite colourless from loss of blood.

She at first attended Dr. Tyler Smith as an out-patient, when it was ascertained that the uterus contained a polypus, which presented in the cervix uteri during the pains of menstruation, but retreated into the uterus at all other times. She was admitted into Boynton ward Feb.9th, just before a catamenial period.

While the particulars of her case were being taken on her admission, Mr. Trotter observed her lips becoming paler and paler, till she became covered with a death-like pallor, and was unable to speak. He instantly administered some wine which was in the ward, and she revived a little. Pulse 96, very small and weak; respirations 28. She was put to bed carefully, when it was found that all her garments, as well as the bed-clothes upon which she sat, were soaked through with blood, of which she must have lost about three pints. Ordered cold injections, cloths soaked in cold water round the pelvis, with port wine and strong beef tea, to be taken cold.

The next day, the os uteri was dilated nearly to the size of half-a-crown, and the polypus presented to this extent. Æthereal tincture of ergot was ordered every four hours, with a view to cause uterine contraction and the extrusion of the polypus. She was faint, but lost no blood beyond a coagulum about as large as an orange. Ordered six ounces of wine, and two pints and a half of beef-tea, daily.

She took the ergot till the 12th, but without effect. The polypus had at present retreated into the uterus, but the cervix was still sufficiently dilated to allow of its being reached with the tip of the finger. The ergot was omitted, and she had ordinary diet, with port wine and beef-tea. On the 14th, there was a return of the hæmorrhage, and the polypus again presented; the ergot was therefore resumed; but the next day, the uterine action had quite ceased, and the polypus could not be reached at all.

Feb. 19th.—Pulse 104, very jerking. She complained of a lump about the size of a crown-piece on the inner side of the left calf. This consisted of a congeries of inflamed superficial veins, which she says always becomes worse at the catamenial periods. It was now excessively painful to the touch, exhibiting a good instance of the mode in which menstrual ulcers are prone to commence. There was also swelling of the left lower extremity, evidently arising from the diseased condition of the veins. Light bandaging, rest, and the mercurial liniment, were employed to remedy these morbid states.

As the ergot failed to expel the polypus, and it was not in a condition to be reached for operation, and could not be drawn down by the vulsella, Dr. Tyler Smith now directed the application of galvanism. One pole was placed over the pubes, and the other passed into the uterus by means of a small catheter, when contraction of the fundus and dilatation of the os were produced, and blood spirted through the catheter. The galvanism was used for ten minutes, and the ergot was afterwards prescribed. On the 20th of February the galvanism was again applied, and the polypus made to present.

From this time to the 15th of March, galvanism was employed at intervals, and always with the effect of producing uterine contraction and dilatation of the os uteri. The latter was now sufficiently dilated to allow the attachment of the polypus to be made out. It sprang from the anterior part of the fundus uteri by a broad hard root, and the polypus itself was of the size of an orange. As it was evident the morbid growth could not pass through the os uteri without the slow elongation of the pedicle, or the inversion of the uterus, and the os uteri being now sufficiently dilated, Dr. Tyler Smith passed a ligature round the tumour by means of Gooch's instrument, galvanism having been previously used with good effect for three-quarters of an hour. The two rods, with the noose of whipcord, were passed high up into the posterior part of the uterus, then separated, and brought over the sides of the polypus to the anterior wall of the womb, when the instrument was properly adjusted, and the polypus strangulated.

Up to March the 18th she went on well, taking plenty of support, and using an injection of chlorinated soda, to control the fœtor of the discharge. On this day, however, the pulse rose to 124, the discharge became very offensive and purulent, the lower part of the polypus feeling disintegrated, the upper hard and cartilaginous. The ligature had been tightened daily. Portions of the polypus were removed by the lithotomy forceps, but the whole mass could not be got away. The root was too high within the uterus to admit of the safe use of the knife or scissors.

In the afternoon she had a violent fit of shivering, followed by profuse and fœtid perspiration. Pulse 125. Ordered, four grains of sesquicarbonate of ammonia every four hours. At six P.M. the pulse was 134, with constant choreic movements of the left forearm. The vagina was kept well washed out with warm water and a weak solution of chlorine, and the ligature was slackened a little.

March 19th.—There are constant starting movements of both arms and the upper part of the body; bowels were opened freely by castor-oil; the pulse kept up, and she had a severe rigor during the day. Discharge from the vagina very profuse. To take eight grains of chlorate of potash in an ounce and a half of cassia water three times a day. The root of the polypus was still hard and solid, and diarrhœa commenced at this time. The shivering, perspiration, choreal movements, and lastly the diarrhœa, all indicated vitiation of the blood by the absorption of the discharges, that fluid having been previously deteriorated by profuse hæmorrhage. The complexion was of ghastly paleness, with the black ring round the eyes deeply marked.

Pieces of the polypus, looking like shreds of parchment soaked in water, came away daily until the 24th of March, when the pedicle separated, and was removed. Every symptom had improved after the occurrence of the diarrhœa. For a day or two fœtid discharge continued from the stump of the polypus, but she took her food well, had no hæmorrhage, speedily bore the citrate of iron with advantage, and rapidly gained blood and strength. The uterus slowly diminished in size, the os uteri closed and ascended in the pelvis, under the use of an astringent injection. In the beginning of April she menstruated naturally, without pain or greater loss than natural, and on the 15th of April, she was discharged convalescent, to go into the country to recruit before returning to her situation as housemaid.

In reviewing the facts of this case, the prominent points of interest will be found,—1st, in the partial inversion of the fundus uteri, which occurred at each catamenial flow; 2nd, in the application of galvanism to contract the uterus and dilate the os, so as to bring the polypus under operative proceedings; and lastly, the relation between the uterine disease and the condition of the veins of the leg. We are not aware, as we stated above, that galvanism has been used before under similar circumstances, but it was evidently far more efficacious in this case than the ergot of rye, and probably but for its use many months might have been wasted, with further losses of blood, before the polypus could have been removed.

GUY'S HOSPITAL.

Aneurism of the Aorta, encroaching both on the Chest and Abdomen; Death; Autopsy;

(Under the care of Dr. BARLOW.)

WHEN we have fully and satisfactorily diagnosed an incurable disease, we feel certain that the patient is labouring under an affection for the removal of which medicine is powerless; and our task then becomes painful and difficult. The physician must, in such melancholy circumstances, consult both his judgment and his feelings, and act towards his patient or the friends of the latter with due circumspection. But before giving the fearful verdict, he should be *quite sure* of the correctness of his diagnosis; and hence the great importance of studying the symptoms of diseases reputed incurable—both as to the necessity of giving the information anxiously sought, and in order not to subject patients to various kinds of treatment, which may be very irksome, and unnecessarily add to their misery. Nor is this all; for by timely advice and caution we may succeed in prolonging life for an indefinite period, in enforcing certain rules, and cautioning patients against indulgences which might considerably hasten the fatal issue. Thus it will be seen that our services are ever useful, as, to the above warnings, we may add the administration of palliatives, which, combined with a proper mental treatment, will accomplish all that human beings are permitted to effect under such trying circumstances.

We dwell the more willingly on this subject, as we often hear from students, and even practitioners, "Where is the use of taking so much trouble to discover organic changes upon which our most potent therapeutical means have no influence whatever? Chemistry teaches me how to discover sugar or albumen in the urine; by the aid of the stethoscope I find out that the lungs or heart are irretrievably spoilt; the microscope allows me to see plainly and distinctly the malignancy and heterogeneous character of a tumour or growth. But what avails all this refinement if I cannot cure my patient?" This question is answered above, and we may add that, however intractable the disease, and however difficult it may be to root it out, considerable relief may sometimes be afforded. Take a heart whose valves are damaged: may not the further fibrinous or ossific deposit be, if not arrested, at least rendered much slower? May not a milder climate and cod-liver oil impede or retard the further formation of tubercular matter? May not an animalized diet prevent the transformation into sugar of certain principles so necessary to healthy nutrition? May not the surgeon in malignant disease give years of comfort by extirpating unsightly tumours; or the physician strengthen his patient so as to resist for a long time the baneful influence of cancerous growths within any of the three cavities?

Examples might be multiplied; but we must for the present rest here, and turn to the case in hand, which will show how many years aneurism of the abdominal aorta may exist without destroying life, how very obscure the symptoms are at the outset, and what an extraordinary course the tumour may sometimes take. We need not say a word about the sources of fallacy in such cases: they are well known. Malignant or innocent tumours of the abdomen have been taken for aneurisms, and *vice versâ*. These mistakes should render us very cautious; and practitioners should well recollect that the presence or absence of a bruit is a symptom not to be relied upon, and which acquires value only in so far as it is combined with other signs, the grouping of which forms a tolerably good evidence. For instance, Dr. Barlow had some time ago, in the clinical wards, a patient, who will probably live for many years, and whose abdomen presented an extensive tumour, the nature of which could not be ascertained, though the disease was suspected to be aneurism of the abdominal aorta. There was no bruit whatever; but by the case which we are going to relate (from the notes of Mr. J. M. Rooke) it will be seen that an enormous aneurism of the abdominal aorta may exist without yielding any abnormal sound to the ear.

J. S——, aged thirty-five, by occupation a painter, residing at Walworth, was admitted March 20, 1852, under the care of Dr. Barlow. The patient is of a sallow complexion, looking very cachectic, and states that he has been ill for the last six years. The first symptom he experienced was a pain at the epigastrium, extending round to the spine; this sensation subsequently passed down the anterior portion of the left thigh, and was accompanied by retraction of the testicle. The pain had set in rather suddenly at first, and the patient ascribed it to the nature of his business, as he is obliged, while whitewashing ceilings with his right arm, to lean his body to the left side, in order to preserve his balance, and retain this constrained position for some time. (Had this constrained position, so often assumed, any influence on the formation of aortic aneurism? had it the same effect as the riding on horseback on the development of popliteal aneurism in postboys and others?) In spite of the above-mentioned pain the patient continued at his work for several years; and about sixteen months ago he was admitted into Guy's Hospital, where he remained nine weeks, and left somewhat relieved. His complaint was then diagnosed to be aortic aneurism; but positive proofs could be obtained neither at that period nor at the time of his re-admission, which took place in March, 1852, as stated above.

On this second examination there is now found a considerable projection of the tenth, eleventh, and twelfth dorsal vertebræ, which projection did not exist at the time of the patient's first admission. In the epigastric region, an indistinct fulness and enlargement are felt, the spot yelding a dull sound on percussion. The man is conscious of a throbbing sensation in that locality, as well as in the lumbar region, but no bruit is to be heard at either part, or elsewhere. Posteriorly, the systolic sound of the heart is perceived more loudly than usual, and the whole of the left side of the chest is very dull on percussion, with a complete absence of tactile vibration and respiratory murmur. The general symptoms are those of depression; the pulse is small, thready, and compressible, but there is no heat of skin, and all the secretions are normal.

In consequence of the patient's great debility, a more complete examination was not made, the latter being postponed to the next day; but at nine in the following morning, he died suddenly. It appears that he had expressed himself better a short time before his death, had eaten his breakfast, and been out of bed an hour prior to his sudden decease.

The body was examined six hours after death; the account of the appearances is as follows:—Body generally blanched: heart pushed to the right side, small, but otherwise healthy, as well as the great vessels immediately springing from the organ; left pleura filled with blood, partly fluid, partly coagulated, and lung compressed against the spine. On clearing out the chest, a large tumour was found on the diaphragm, the former being covered by the serous membrane. Whilst this tumour was in situ, it was considered to be in the abdomen, but by pushing the diaphragm upwards, this muscle was seen to have given way towards the chest, the aperture being almost circular, and about the size of a five-shilling piece. This rupture had given rise to the hæmorrhage of which the patient had suddenly died. Below the diaphragm, universal adhesions were found, caused by chronic peritonitis, and from behind and beneath the liver and stomach an enormous aneurismal tumour, about the size of three fists, was discovered pushing forwards and upwards. On removing the liver and stomach, as well as the intestines, the position of the aneurism was more clearly made out. It was now found to have taken its origin at the posterior part of the aorta, just above the cœliac axis; the opening of communication between the artery and the sac was about an inch and a half in length and three quarters of an inch in breadth, of an oval form, with its long axis in the course of the artery, its edges rounded, though roughened by ossific deposit. The bodies of the eleventh and twelfth dorsal vertebræ were almost entirely absorbed, the finger easily impinging upon the membranes of the cord, but the intervertebral substances had escaped.

This aneurism had taken a somewhat curious course; it had made its way beneath the pleura covering the diaphragm on the left side, having arisen just between the crura of that muscle, the tumour being thus placed more in the thoracic than in the abdominal cavity. It had then dissected its way laterally, between the muscular coat of the diaphragm and the pleura, having the former for its lower, and the latter for its upper, boundary. Thus the aneurism could not be said to be either above or below the diaphragm, being actually situated between its distended layer. The upper or serous boundary had, in the end, ruptured. It is very probable that the solution of continuity attained its large size somewhat gradually, the effusion having taken place co-relatively, and in a similar ratio. The pouch itself was lined by old fibrinous clots, but no proper coat was perceptible, the sac being formed by the diaphragm and pleura, as above described; the spine and neighbouring muscular structures forming the posterior limits. The large size of the opening into the sac afforded a satisfactory explanation of the absence of any bruit, though the latter may have existed at an earlier stage of the disease, when the aperture was smaller. It is but seldom, as far as we have seen, that patients suspected to suffer from aortic aneurism are examined in the lumbar region. It is evident, by the foregoing case, that very important information can be derived by such an investigation; it should, in fact, never be omitted.

ST. BARTHOLOMEW'S HOSPITAL.

Acute Inflammation of the Knee-Joint and the whole Shaft of the Tibia, in a young subject; rapid Suppuration and destruction of parts; Amputation; Recovery.

(Under the care of Mr. Stanley.)

It is of much importance for the surgeon to possess accurate data concerning the rapidity with which acute inflammation may, under certain circumstances, destroy all the textures entering into a joint, and disorganize the whole limb. An example of such fearful destruction has been afforded by a case under the charge of Mr. Stanley, and we proceed to lay the particulars before our readers.

Sarah B——, aged fourteen years, was admitted under the care of Mr. Stanley, February 5th, 1851, with considerable swelling of the leg and knee-joint, and œdema of the thigh; great emaciation, and complete prostration of strength. The patient was brought to the hospital from a charity school, where she had enjoyed very good health until eight weeks previous to her admission, when she complained of pain in the ankle, the sensation being as if the articulation had been sprained, though no injury had been sustained. Eleven days afterwards, the whole leg, knee-joint, and thigh swelled rapidly, the pain extended over the whole limb, the patient suffered intense pain, and as the simple means which were resorted to seemed in no degree to check the progress of the disease, she was brought to the hospital.

On examination, the whole limb, from the middle of the thigh downwards, was found red, painful, and swollen to double the size of its fellow. The pain, both in the knee-joint, leg, and ankle, was excessive, and distinct fluctuation could be felt over the spine of the tibia. The patient was in a very weak state: hectic fever and sleepless nights had reduced her to the lowest ebb; the countenance was anxious and the skin hot and dry. The menstrual function had not yet been established.

Mr. Stanley, after carefully considering the case, gave as his diagnosis, acute inflammation of bone, which would quickly destroy life if very prompt measures were not adopted. An opening was made at once over the spine of the tibia, where the fluctuation was detected, and an enormous quantity of pus escaped. On introducing the probe, the tibia was found denuded through almost the whole of its circumference, and it became, besides, evident that the knee-joint was in a state of acute inflammation, if not completely disorganized by ulceration.

It was plain that nothing could save the patient but the removal of the limb: but Mr. Stanley thought that endeavours should be first made to recall a little vigour into the patient's frame. Wine and nourishing diet were ordered, which had the effect of reviving the girl a little; but she soon lost ground again, and amputation above the knee-joint was performed on the third day after admission.

The anterior flap being rather long, a small opening was made into the knee-joint, which gave exit to a considerable quantity of pus. The limb was examined immediately after the operation, when the knee-joint offered all the characters of structures deeply affected by acute inflammation; synovial membrane thickened, vascular, and granular, and of a pale, reddish-brown colour, the opposed surface adherent in some parts; articular surface of patella and condyles of the femur deprived of cartilage, &c. On the outer side of the joint the inter-articular cartilages were destroyed, the condyles of the tibia quite denuded, and the ligaments soft and vascular. The ankle-joint was not affected in the same manner, but there was pus in the cellular tissue round the joint. As to the tibia, two-thirds of the shaft were deprived of periosteum, and there was pus beneath the remaining portion of that membrane. The epiphysis of the upper portion was completely separated, the knife easily passing between epiphysis and bone. This state of parts had first been supposed to depend on softening of the ligaments, but this loosening of the epiphysis was the real cause of the twist which the joint had assumed. When the epiphysis was removed, the upper part of the tibia presented a stalactite appearance, and was very brittle. Both above and below, the medullary canal of the tibia was found, on sawing it longitudinally, infiltrated with pus.

Mr. Stanley was inclined to think that the acute inflammation had originated in the medullary canal of the tibia, and had thus rapidly spread to the knee-joint; the soft parts becoming subsequently infiltrated with pus and serum. He considered this to be a very rare affection, and he did not recollect, within the last twenty years, an instance where the disease had run so rapid and destructive a course. There is, however, in the museum of this hospital, the tibia of a boy which was likewise found completely filled with pus. This little boy was brought so low by the attack, that he was merely turned in bed and amputation performed on the spot. It might, perhaps, with some reason, be supposed that in such cases the medullary canal of the bone is filled with tubercular matter, and that inflammation and suppuration occur subsequently. The patient, in the present case, remained about six months in the hospital. It was some time before she regained her strength: but by dint of good nursing, plentiful diet, and appropriate medicines, she left with a good stump, and in excellent general condition.

ROYAL FREE HOSPITAL.

Cases of Stricture of the Urethra treated with the Urethral Guide and Tubes.

(Under the care of Mr. THOMAS WAKLEY.)

IN the month of March, 1851, we published in "The Mirror" an account of the "urethral guide and tubes" designed by Mr. Wakley, for the removal of strictures of the urethra, and abstracts were given of the first cases publicly treated at the hospital by the new method; it will be recollected that those reports were most satisfactory. It was then stated that the introduction of the "urethral guide" of the smallest size ensured the safe passage of the graduated sliding tubes through the strictured portion of the urethra.

When the guide is once introduced, the command of the urethra is at the disposal of the operator. That instrument easily and safely directs the tubes through the right channel, and prevents them from entering either sinus or false passage. In a word, the guide having taken a right course, the tubes cannot take a wrong one. Nor is the command of the canal relinquished on the withdrawal of the last metallic tube—on the contrary, a free passage is then retained, by introducing an *elastic* tube over the guide. The latter is then withdrawn, and may be reintroduced at the will of the operator. The importance of the elastic tube is thus of immense practical value, because it maintains a free canal for as many days as may elapse between one operation and the subsequent, and allows the surgeon to resume the dilating process by passing the above-mentioned guide through the elastic tube; not one particle of the ground before gained being lost, and the annoyance not being experienced of meeting with the same difficulties at the second sitting as were overcome at the first.

Reports of numerous cases treated at this hospital have been very carefully prepared. These embrace almost every complication connected with stricture of the urethra—of stricture combined with fistula, of extensive cartilaginous thickening, of what is called "impermeable stricture," and of old-standing permanent strictures, down to the simple urethral obstruction.

The new method possesses the following advantages over the old "course of treatment" to which patients were subjected:—rapidity of cure, safety and simplicity of action, and increased facilities in the hands of the surgeon. Many of the cases we ourselves have seen in our periodical visits to the hospital, and we beg in the meanwhile to present to our readers the two following short abstracts:—

Ambrose P——, a carrier, aged forty-nine, was admitted into the hospital, suffering from old-standing stricture of the urethra, combined with two perinæal fistulæ. He states that his disease is of twenty-five years' standing. This man was treated by the "urethral guide and tubes." The only difficulty experienced in this case was the introduction of the guide; this accomplished, the stricture was dilated with the silver sliding tubes to three sizes, and a No. 5 elastic tube retained in the urethra. The renal secretion passed through the tube at once, and the fistulous opening commenced to heal from the first day of treatment, being freed from the irritating cause which had existed for months. This patient in five weeks left the hospital quite well in every respect, the stricture removed, the fistulous opening healed, and the man's general health much improved. He subsequently paid a visit to the surgeon, who states that a No. 10 bougie can be easily passed through the whole extent of his urethra.

Richard H—— was admitted October 6th, 1851,

into the hospital. He had a long cartilaginous stricture of the lower part of the urethra of twenty years' standing. At that time his surgeon told him he had abscess of the perinæum, which burst into the urethra. Upon examination, an extensive false passage was discovered running to the right of the stricture. This man was likewise treated with Mr. Wakley's "urethral guide and tubes," and in three weeks was discharged from the hospital quite well, a No. 12 bougie passing easily. He has since become a strong, healthy man, and has not suffered from recurrence of his previous distressing symptoms.

CHARING-CROSS HOSPITAL.

Removal of one-half of the Lower Maxilla for secondary cancerous manifestation.

(Under the care of Mr. HANCOCK.)

THE removal of either the upper or lower maxilla has now become an established operation in surgery, many successful cases have been recorded, and the next generation of surgeons will doubtless feel emboldened, and perform the operation with great confidence. It should, however, not be concealed that cases occur which do not terminate successfully, and that the greatest caution will always be necessary in the selection of the patients which are most fit for operation—with whom, namely, a renewed development of the disease is not to be feared, and where the subject posse-ses sufficient stamina to resist the effects of a procedure in which chloroform can only partially be taken advantage of.

We recorded a short time ago (in a former number of THE LANCET) an operation of this kind, as performed by Mr. Hancock, upon the upper maxilla of a little girl, affected with an enormous expansion of the antrum and surrounding parts by osseous deposit. We are glad to say that the young patient has progressed very favourably. Union has taken place in all points, except towards the inner canthus of the eye, and the most favourable termination of the case may reasonably be expected.

The patient upon whom Mr. Hancock operated, a few days ago (May 3, 1352,) was suffering from the recurrence of cancerous disease just below and upon the lower jaw, on the left side, in which locality a fungous growth, about three inches in diameter, circular, depressed in the centre, and malignant-looking, had presented itself. The man is forty-three years of age, following the occupation of cabman, and it appears that, about a year and a half ago, he received a blow on the lower lip, from a horse's bit, the sharp end of which pierced the soft parts, and forced a portion of the lip into the mouth, which portion, according to his statement, he bit off. After some time a chasm was left in the lip, which latter, after proper treatment, resumed very nearly its healthy condition. Two months afterwards the part ulcerated upon a bilious attack, and has continued to do so up to the present time. The patient further states, that upon his first going out after his bilious attack, he felt a "kernel," as he calls it, in the neck, immediately under the lower jaw, on the left side. This gradually enlarged for the space of four months, in spite of various modes of treatment, and about five weeks before admission it began to ulcerate. There is severe lancinating pain in the tumour, which has finally assumed a fungous, cancerous aspect, and is discharging sanious matter. The patient's habits have been temperate, and he was never affected with the venereal disease.

Mr. Hancock considered that the bone was implicated, and that the only chance of doing the man any permanent good was to remove a portion of the lower jaw. Chloroform was administered, and the first incision ran from over the malar bone to the commissure, and the second from the same point round and below the tumour, to about an inch and a half beyond the symphysis. As the tumour implicated a large portion of skin, much of the latter was necessarily sacrificed; the flaps were dissected upwards and downwards, the vessels tied, and the bone divided, first to the right of the symphysis, and secondly close to the coronoid process, both with saw and forceps. The bone being removed, it was found that the submaxillary gland was involved in the disease, as well as a portion of the surrounding muscular tissue. These soft parts were now rapidly excised, and as they were composed of all of the muscles which connect the tongue with the jaw, the chasm became very deep, and the tongue lost most of its support on the left side. This organ was carefully held out with a thread passed through its root, by which precaution asphyxia by the falling of the tongue upon the epiglottis was prevented. The effects of chloroform were partially kept up all this while, and the numerous vessels quickly tied, but the loss of blood was unavoidably great. The gap left on the side of the face could evidently be closed up only by transplantation of soft parts, but this Mr. Hancock wisely postponed to a further operation.

The examination of the pathological specimen proved that the tumour was firmly attached to the bone, but that it had as yet implicated the periosteum only. We shall give an idea of the extent of jaw removed by stating that the gums contained ten teeth.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

TUESDAY, MAY 25, 1852.—MR. HODGSON, PRES.

ON SOME OF THE PRINCIPAL EFFECTS RESULTING FROM THE DETACHMENT OF FIBRINOUS DEPOSITS FROM THE INTERIOR OF THE HEART, AND THEIR MIXTURE WITH THE CIRCULATING BLOOD. BY WILLIAM SENHOUSE KIRKES, M.D.

[*Communicated by* DR. BURROWS, F.R.S.]

As an introduction to the subject, the author observed that it was a clearly established fact, that the fibrinous principle of the blood might, under certain circumstances, separate from the circulating fluid, and be deposited within the vascular system, especially on the valves of the heart. The forms of fibrinous concretions to which the following observations especially applied, were, first, the masses usually described as Laennec's globular excrescences; and secondly, the granular or warty growths adhering to the valves, and presenting innumerable varieties, from mere granules to large irregular fungous or cauliflower excrescences, projecting into the cavities of the heart. These growths, when once formed, whatever might be their origin, were full of peril, and would often remain so long after the circumstances which gave rise to them had passed away. When of large size, or loosely adherent, they might at any time be detached from the valves, and conveyed with the circulating blood, until arrested within some arterial canal, which might thus become completely plugged up, and the supply of blood to an important part be suddenly cut off, from which serious if not fatal results would ensue; or, smaller masses might be detached, and pass on into arteries of much less size, or even into the capillaries, whence congestion, followed by stagnation and coagulation of the blood, and all the consequent changes such coagulated blood is liable to undergo in the living body, would necessarily follow. Many singular morbid appearances observed in internal organs, and not well accounted for, were probably brought about in this manner. Again, the masses of fibrine might soften, break up, and discharge the finely granular material resulting from their disintegration into the circulating blood and, contaminating this fluid, might excite symptoms very similar to those observed in phlebitis, typhus, and other analogous blood diseases. Thus the fibrinous material detached from the valves, or any other part of the interior of the heart, might be the cause of serious secondary mischief. The parts of the vascular system in which these transmitted masses of fibrine might be found, would in great measure depend upon whether they were detached from the right or left cavities of the heart. Thus, if from the left, they would pass into the aorta and its subdivisions, and would be arrested in any of the systematic arteries or their ramifications, and especially into those organs which receive large quantities of blood direct from the left side of the heart, as the brain, spleen, and kidneys: on the contrary, if escaping from the right cavities, the lungs would necessarily become the primary, if not the exclusive, seat of their ultimate deposition. A division of the subject being thus naturally formed, the author proposed to consider the subject, first, as to the remote effects resulting from the separation of fibrinous deposits from the valves or cavities of the left side; and secondly, as to the corresponding effects produced by the detachment of like deposits from the valves or cavities of the right side of the heart. The author then proceeded to elucidate the first branch of the subject, in which masses of some magnitude were detached from the left side, and arrested in an arterial channel of notable size. This pathological fact was illustrated by three cases, in many respects identical; for, in each, death appeared to ensue from softening of the brain consequent on obstruction in one of the principal cerebral arteries by a mass of fibrinous material, apparently detached from growths on the left valves. The first case was that of a female, aged thirty-four, of pale and delicate aspect. She had suffered from rheumatic pains, and there was a loud systolic murmur heard over the entire cardiac region. While under treatment for these symptoms she suddenly fell back as if fainting. She was found speechless, with partial hemiplegia of the left side, but there was no loss of consciousness; the hemiplegia increased, involved the face and limbs, and gradually became complete in regard to motion; but sensation remained unimpaired. These symptoms lasted five days, when she quietly died. The post-mortem examination developed much congestion of the pia mater, amounting, in some places, to ecchymosis. The right corpus striatum was softened to an extreme degree—being reduced to a dirty, greyish-white pulp. In the posterior lobe of the right cerebral hemisphere was a similar spot of pale softening. The right middle cerebral artery, just at its commencement, was plugged up by a small nodule of firm, whitish, fibrinous-looking substance, not adherent to the wall, but rendering the canal almost impervious. The vessels of the brain were generally healthy, except a yellow spot or two in the coats of those at the base of the brain. The heart was enlarged; several broad white patches externally. The right valves were healthy, so also were the aorta; but the mitral valve was much diseased, the auricular surface being beset with large warty excrescences of adherent blood-stained fibrine. The right common iliac artery, about an inch above the origin of its internal branch, was blocked up by a firm, pale, laminated coagulum, which extended into the internal iliac. The pleuræ were adherent in places; liver and intestinal canal healthy; spleen large, pale, and soft, and contained a yellowish-white, cheesy substance. The kidneys were pale, rough, and granular; within the cortex of the right were several large masses of yellow deposit, surrounded by patches of redness. Death had resulted in this case from the softening of a large portion of the right side of the brain, which the author considered to have arisen from an imperfect supply of blood, consequent on the middle cerebral artery of the same side being obstructed by a plug of fibrine. The author then discussed the sufficiency of such an obstruction to produce the effects ascribed to it, and he brought forward many examples showing that atrophy and disorganization usually resulted from any circumstance which materially impeded, or entirely cut off, the supply of blood to a part. The author then directed attention to the probable source of the fibrinous plug found in the middle cerebral artery. The suddenness of the cerebral symptoms rendered it probable that the blocking up of the artery was equally sudden, and not the result of gradual coagulation of the blood within the vessel. The absence of all local mischief in the coats of the artery at the point of obstruction, as well as elsewhere, pointed to some other than local origin for the clot; and the author, at the time of the examination, formed the opinion, that a part of the fibrinous deposit on the mitral valve had become detached, and carried by the stream of blood, until arrested at the angle whence the middle cerebral proceeded. This explanation suited equally for the plug found in the common iliac; for it was quite conceivable that portions of the loosely adherent fibrine might be easily detached by the stream of blood washing over the mitral valve, and when once admitted into the circulating current, they would only be arrested by arriving at a vessel too small to allow their transit along its canal. Two other cases were described by the author, possessing many interesting points of resemblance: one, a female, aged twenty-four; the other, a male of the same age. Both were admitted into the hospital with hemiplegia of the left side; each had heart disease, indicated by a loud systolic murmur. The post-mortem examinations revealed the following morbid appearances common to both:—Softening of a limited portion of the brain, producing death by hemiplegia; obliteration of the cerebral artery supplying the softened part; coagula in one of the iliac arteries; fibrinous deposits in the kidneys and spleen; and the presence of fibrinous warty excrescences on the valves of the left side of the heart. So many and such rare features of resemblance could not fail to demonstrate a very close connexion between the several morbid appearances so exactly reproduced in each case. The author believed that these three cases satisfactorily established the two following conclusions—1st, that softening of a portion of the brain, with attendant loss of function, might result from obstruction of a main cerebral artery by the lodgment of a plug of fibrine within its canal; 2ndly, that the foreign substance thus obstructing the vessel was probably not formed there, but was derived directly from warty growths situated on the left valves of the heart. The author thought it not improbable, although in the absence of direct proof it was but supposition, till further investigation confirmed these facts, that many cases of partial and temporary paralysis suddenly ensuing in one or more limbs of young persons, especially if accompanied with signs of cardiac disease, might be due to interruption of a proper supply of nutriment to the brain by the temporary plugging up of a principal cerebral artery by fibrine, detached from a diseased valve on the left side of the heart. Other arterial branches, besides those of the base of the brain, might arrest these fibrinous deposits derived from the valves of the heart. In cases 1 and 2, coagula were found in the iliac and femoral arteries; and in Case 3, in the renal. The author thought that many specimens found in museums, and supposed to illustrate the spontaneous coagulation of the blood, or the deposition of fibrine within a limited portion of an arterial trunk, were probably to be referred to the same cardiac origin, and he illustrated the point by reference to a preparation in the museum of St. Bartholomew's Hospital. The second subject of inquiry consisted of an examination into the effects produced by smaller portions of fibrine detached in a similar manner, but arrested in the minute arterial branches, or even in the capillaries. The author thought that the singular masses of yellow fibrinous substance found in the spleen and kidneys, and other organs, and hitherto described as "capillary phlebitis," "metastasis," or "fibrinous deposits," were derived from this cause Out of twenty-one cases in which the author had observed these deposits in the spleen and kidneys, or other parts deriving blood directly from the left side of the heart, in nineteen there was disease of the valves, or of the interior of the left side of the heart. In fourteen of these there were fibrinous growths on the surface of the left valves; in the remaining five there was simple mention of valvular disease. The author thought that the mere fact of so large a number of cases of so-called "capillary phlebitis" being associated with the presence of fibrinous deposit on the valves of the heart, suggested a very close relation between the two morbid states. The author then entered upon the third branch of this part of the subject, concerning the series of effects which might result from the introduction of fibrinous particles into the circulating blood, manifesting phenomena indicative of the existence of a morbid poison in that fluid. A case was related of a youth, aged fourteen, admitted into the hospital with obscure typhoid symptoms, the surface of the body being covered with petechiæ. Delirium, with much febrile prostration, followed; he became subsequently comatose, and died. Upon examination of the body, the surface was found covered with petechiæ. The pia mater was infiltrated with what seemed recently effused blood. The surface of the brain thus presented a blotchy appearance, and amid these spots were yellow-coloured patches of various size; some were of a greenish-yellow hue, and had the appearance of being smeared over with pus. The brain was unduly congested, and some ecchymosis near the surface; the cerebral arteries and sinuses healthy; several petechial spots on the surface of the heart, as well as in the cavities; and on the auricular surface of the mitral valve some white fibrinous vegetations, very soft and friable; a like deposit on the aortic valves, with evidence of ulceration; several yellow masses of fibrinous deposit on surface of spleen; cortical part of the kidney covered with minute petechial spots, in the centre of which was a buff-coloured dot; several large yellowish blotches extended deep into the substance of the cortex. The intestinal mucous surface was covered with petechial spots, which were apparent also on the mucous membrane of the bladder, pharynx, œsophagus, stomach, larynx, and trachea. The author considered the mystery of this case cleared up by the post mortem examination. The attack had been ushered in by a severe pain in the right groin, which was rheumatic; then ensued rheumatic inflammation of the mitral and aortic valves, with ulceration of the latter, and deposition of fibrine. From these deposits portions had probably separated during life, and were transmitted with the blood to all parts of the body, and being arrested in the capillary networks and smaller arteries, produced the various petechial and buff-coloured spots above described.

The second part of the paper related to the effects which might result from the detachment of fibrinous deposits from the right valves of the heart. Reference was made by the author to a paper on the Formation of Coagula in the Pulmonary Artery, by Mr. Paget, published in the *Transactions* of the Society, as well as to a specimen in the museum of St. Bartholomew's Hospital, in which there was deposition of fibrine on each of the pulmonary valves, with old coagula filling many of the branches of the pulmonary artery. In this case several large, solid, fibrinous masses were found in the substance of the lungs, presenting appearances not unlike portions of old pulmonary apoplexy. Lastly, the author recapitulated the principal points which he was desirous of establishing, viz.,—1st. That fibrinous concretions in the valves of the heart admit of being readily detached during life. 2ndly. That if detached and transmitted in large masses, they may suddenly block up a large artery. and thus cut off the supply of blood to an important part; if in smaller masses, they might be arrested by vessels of smaller size, and give rise to various morbid appearances in internal organs; or the particles mingled with the blood might be but the *débris* of softened fibrine, yet with the power to produce a poisoned state of the blood, and bring on typhoid or phlebitic symptoms. 3rdly. That the effects produced and the organs affected would be in great measure determined by the side of the heart from which the fibrinous material had been detached: if from the right side, the lungs would bear the brunt of the secondary mischief: but if, as was most commonly the case, the left valves were the source, the mischief would be more widely spread, and might fall on any part, but especially on those organs which were largely and directly supplied with blood from the left side of the heart, as the brain, spleen, or kindeys.

In the discussion which ensued on Dr. Kirkes' paper, and which was prolonged far beyond the usual hour of adjournment, several gentlemen addressed the Society. The unusual length of our abstract prevents our giving a detailed report of the various speeches in this week's LANCET. All the speakers, however, eulogised the paper as a very able and masterly production; but several of them took exception to the conclusions arrived at by the author respecting the last two series of cases. It was admitted by all that the researches of Dr. Kirkes opened a wide field of observation; and with reference to the first class of cases, that they threw light on the cause of many obscure instances of softening of the brain, respecting which we had hitherto been unable to form anything better than a conjecture.

TUESDAY, JUNE 8.

ON THE PROTECTION AGAINST SMALL-POX AFFORDED BY VACCINATION, ILLUSTRATED BY THE RETURNS OF THE ARMY, NAVY, AND THE ROYAL MILITARY ASYLUM.

By T. GRAHAM BALFOUR, M.D., Surgeon to the Royal Military Asylum.

ONE of the principal difficulties in the investigation of this subject, the author thought. arose from the impossibility of ascertaining what proportion of the general population was unprotected by vaccination. Accurate deductions could, however, be founded on the returns of the army, navy, and Royal Military Asylum. Although the returns of the first department did not show the actual number of soldiers who had been vaccinated or had the small-pox, yet a tolerably accurate approximation might be obtained. From returns forwarded to the Army Medical Board, it appeared that out of 90,092 recruits medically inspected and found fit for service, 20,132 bore marks of small-pox, 64.096 had marks of vaccination, and 5864 bore no distinct traces of either. By the rules of the service, the latter would be immediately vaccinated; added to the second class, a total of 69,960 or 78 per cent. of the whole, would be protected by vaccination; 22 per cent. representing the proportion of those protected by previous small-pox. The question next arising was, what number of admissions into hospital and deaths by small-pox had occurred in this number. Abstract No. 1 in the Appendix furnished this information, and it showed the proportion of cases of small-pox to have been 66, and the deaths 8, in every 100,000 men serving throughout the army. But the prevalence and mortality varied in different portions of the force. Thus, the deaths had been four times as numerous among the troops in the United Kingdom as in temperate colonies, and eight times as numerous as in tropical colonies; while a still greater disproportion was found to exist in the admissions into hospital. A comparative statement of the proportion of small-pox among the black troops and Europeans serving in tropical colonies during several epidemics, was furnished, by which it appeared that the disease literally decimated the black troops, while not a single death occurred among the European soldiers serving in the same garrisons. The author observed, that if the hypothesis be correct, that the protective power of vaccination became gradually weaker, and at length died out, the mortality from small-pox should be greatest among the old soldiers. The following return illustrated this point:—

Ages.	Aggregate strength at each age.	Died by Small-pox	Ratio of Deaths per 1000 of strength.
Under 20	43,833	15	0·342
20 — 25	90,041	28	0·311
25 — 30	49,285	3	0·061
30 — 35	37,151	8	0·216
35 — 40	25,017	1	0·040
40 & upwards.	9,270	0	...
Not known.	...	1	...
	254,957	56	220·0

Returns from the navy exhibited the same satisfactory evidence of the protective power of vaccination. The vaccination register of the Royal Military Asylum had been kept with great care, and reliable evidence could be obtained from it. During a period of 48 years, 31.705 represented the aggregate strength of the boys, and among these only 39 cases of small-pox occurred, of whom 4 died. It must be borne in mind that every child bore marks of cow-pox or small-pox, or had been subsequently vaccinated; so that, in a population completely protected, the average was but 123 cases, and the deaths but 12, in every 100,000, being a still lower ratio than in the army serving in the United Kingdom. Another return displayed the comparative amount of protection afforded by vaccination and previous small-pox. The ratio of cases per 1000 of the latter was 6·15, and the deaths 2·05; while of those previously vaccinated, the ratio of cases was 7·06, and the deaths 0. All the deaths were thus from secondary small-pox. The author thought the preceding facts afforded most conclusive evidence of the protective value of vaccination, while the extensive numbers, and the period of time over which the observations extended, justified a very firm reliance on such evidence. He thought this evidence had an important bearing on the proposition recently made to legalize inoculation. While so large a proportion of the community remained unprotected by vaccination, he thought such a course most unjustifiable. Absolute immunity from small-pox was not to be expected, but the foregoing returns showed the great exemption obtained by vaccination. Vaccination should be made compulsory. It had been said that this would interfere too much with the liberty of the subject; but so to a certain extent did all measures relating to the public health. The prejudices of the few must be made to give way before the interests and safety of the many. In Factory Acts, parliament recognised the principle of protecting the young against an amount of labour calculated to be injurious, and this in spite, not of the prejudices, but of the so called rights of parents; and it would be but an extension of this humane principle to make vaccination compulsory, and thus afford protection against a malady of so fatal a character as small pox.

ON THE DIMINUTION OF THE CHLORIDES IN THE URINE, OR THEIR ABSENCE FROM THAT FLUID, IN CASES OF PNEUMONIA; AND ON THE CHEMICAL COMPOSITION OF THE SPUTA IN THAT DISEASE. By LIONEL SMITH BEALE, M.B. Lond.

[*Communicated by* Dr. TODD, F.R.S.]

THE author's attention had been first drawn to this subject by some observations of Dr. Redtenbacher, who had noticed the absence of chloride of sodium from the urine in pneumonia, and who, in 1850, had published the fact that the chloride gradually diminished until the period of hepatization had occurred, when it disappeared altogether from the urine, and gradually reappeared as resolution progressed. A diminution of the quantity of chloride in a variety of diseases of the inflammatory type, had been noticed by Franz Simon; but in these diseases they appeared only to suffier diminution, and not to be invariably absent from this fluid, at the period of inflammatory condensation, as Dr. Redtenbacher had shown to be the condition in pneumonia. The author, with a view, if possible, of making out the channel through which the chloride of sodium was eliminated from the system in this disease, or of determining the locality in which it was stored up, and desirous also to trace the connexion between the absence of the salt from the urine and the occurrence of hepatization, had instituted the observations which formed the subject of the paper. The observations were made on cases in King's College Hospital, and were taken indiscriminately from amongst the mild and severe. The mode adopted by Dr. Redtenbacher, to estimate the quantity of chloride present, appeared to be simply approximative. The author desired to obtain quantitative results, and pursued a closer and more accurate method of analysis. He showed that if the chloride was estimated merely by nitrate of silver and nitric acid, volatile chlorides would be thrown down, as well as the fixed chloride of sodium, and he had not overlooked the fact of the presence of hydrochlorate of ammonia as one of the ordinary constituents of urine. By the rude method just mentioned, chloride of sodium might be entirely absent from the urine, and yet an abundant precipitate be furnished by nitrate of silver, insoluble in nitric acid. The following was the method pursued:—The reaction and specific gravity were first observed; 1000 grains were then evaporated to dryness over a water-bath, and subsequently at 200° in a water-oven, and the dry residue weighed for the amount of water. A weighed portion of the solid residue was incinerated, and carefully decarbonized at a dull-red heat; and the weighed residue, by calculation, gave the amount of salts present in 1000 parts. The soluble portion of this saline residue was taken up by distilled water, acidulated with nitric acid; nitrate of silver being then added, the presence of fixed chloride was at once detected. The precipitate, if any, was washed, dried, ignited in a porcelain crucible, and weighed, and the chloride of sodium calculated from the chloride of silver obtained. This method gave in each analysis the quantities of water, solid matter, fixed salts, and chloride of sodium, in 1000 grains of urine. A similar method was pursued in estimating the amount of chloride existing in the sputa, blood, and urine. The necessity for correct diagnosis, and the selection of well-marked cases of the particular morbid condition under consideration, was of the utmost importance in all chemico-pathological investigations. The notes of the cases which formed the subject of these analyses were kept by the clinical clerks of the physician under whose care the patient had been placed. The variable quantities of chloride of sodium, its deficiency or absence, was not peculiar to pneumonia, but might sometimes depend upon the proportion taken in with the food. It might, however, be considered that healthy urine contained 3·5 per 1000 or five per cent. of the solid matter. The absence of chloride of sodium from the urine indicated generally a deficiency, or at least no excess, of that salt in the blood; but the interesting fact in regard to pneumonia was, the total absence of this salt from the urine at a particular phase of the disease, and its excess in other secretions, or in the inflammatory product itself; and this fact might be viewed as one of a series of phenomena, which, when more fully investigated, was calculated to shed some light on the hidden processes of pathological metamorphoses. Then followed a full record of nine cases of pneumonia, with the analysis of the urine. The sputa were analyzed in the third, seventh, and eighth cases. The hepatized portion of the lung in one fatal case was also analyzed, and the results compared with equal weights of healthy lung. The deductions which the author sought to establish were—1. That in pneumonia there is a total absence of chloride of sodium from the urine, at or about the period of pulmonary hepatization. 2. That as resolution of the inflammation proceeds, the chloride becomes restored to the urine. 3. That at this period the serum of the blood is found to contain a greater proportion of chloride than in health. 4. That the presence of chloride of sodium in the urine indicates an excess of that salt in the blood; and that its absence from the urine implies that the blood contains less than the average quantity. 5. That the sputa of pneumonia contain a greater quantity of fixed chloride, than healthy pulmonary mucus. 6. That there was reason to believe that the absence of this salt from the urine in the stage of hepatization, depended on a determination of the salt to the inflamed lung; and that when resolution occurred, it was re-absorbed, and appeared in the urine.

On the Structure, Function, and Diseases of the Liver; and on the Action of Cholagogue Medicines.

By C. Handfield Jones, M.D., F.R.S.

[*Communicated by* Dr. Bence Jones, F.R.S.]

The author first described the minute structure of the liver, which consisted essentially of a mass of nucleated cells or celloid particles, usually more perfectly formed than the cells either of the salivary or renal glands, presenting a distinct nucleus, with a nucleolar spot, an exterior envelope, and an included mass of soft, semi-solid, albuminous substance, which commonly contained a few oily molecules. In addition to these, in well-nourished livers, were numerous free nuclei, imbedded in albuminous blastema, which exhibited various stages of progress towards the mature or perfect cell. The oily contents of the cells were subject to great variation, both in the same individual and in different classes of animals;—the less perfect the type of the respiratory process, the greater the quantity of oily matter in the hepatic cells. The cells in their general mass constituted the hepatic parenchyma; this might be subdivided into smaller portions, called lobules, which were separated from each other more or less completely by fissures, the fissures themselves being continuous with canals that ramified throughout the parenchyma, and which, from containing the portal vein and its associated vessels, had been termed portal canals. In reference to the mode of distribution of the vessels, originally so well expounded by M. Kiernan, the author remarked that he decidedly agreed with Theile, who denied the existence of the vaginal branches and plexus of the portal vein mentioned by M. Kiernan. The author quoted from a paper by Mr. Paget, who had described these vaginal plexus to be derived, not from the portal veins, but from the hepatic arteries, from which they were completely filled, when both arteries and veins were at the same time injected. The interlobular portal veins were therefore derived directly from the portal veins; and those which appeared to be vaginal branches of the portal vein were its internal roots, by which it received the blood which had served for the nutrition of the hepatic ducts and other vessels of the liver. After alluding to the mode of ramification of the hepatic artery, and the divisions of the hepatic ducts following the branches of the portal canal, the author referred to the relation which existed between the ultimate ducts and the cells constituting the parenchyma of the lobules. The prevalent opinion had been, that these cells were exactly homologous to the cells of the renal tubuli or salivary vesicles, like them growing on a free surface open to the exterior. Hence some anatomists had believed they had detected a basement membrane forming anastomosing tubes, constituting a true lobular biliary plexus. Others, unable to find a basement membrane, had described the ducts as continued into the parenchyma of the lobules, as channels without proper walls, mere intercellular passages. After referring to the researches and opinions of Weber, Müller, Professor Retzius, on the one side, and of Val Guillon, Gerlach, and Dr. Carpenter, on the other, the author stated that the views of Kölliker, who denied the existence of intercellular passages into the lobule, agreed very nearly with his (the author's,) and conceded his main position, that the cavity of the ducts was quite shut off from the cells of the lobules or their interspaces. The structure of the ultimate ducts, which the author had first discovered, was peculiar, and seemed to indicate strongly that they exerted active functions, and that they were something more than mere afferent canals. The injection of the duct in the livers of pigs, by the double method, using separately saturated watery solutions of bichromate of potass and acetate of lead, exhibited an abundant yellow precipitate in the fissures; but in very few parts did it penetrate the lobules, which must have happened if there existed a lobular biliary plexus of intercellular passages. The author conceived, therefore, that the hepatic ducts did something more than merely carry out already elaborated bile. The ultimate ducts were far too small, and too sparingly distributed, to be able to take up the bile from so vast a mass of cells as that which constituted the parenchyma. If the ducts did not extend beyond the margins of the lobules, of which the author had no doubt, then the bile must be transmitted from cell to cell; or there was a march of cells outwards from the centre to the circumference; or else the bile, arriving at the margin of the lobules, was taken up by the ultimate ducts in some unknown way. The author thought such assumptions groundless and unnecessary; and that the pathological state of fatty liver, as well as the fatty liver occurring naturally in fishes, showed that the secretion of the parenchyma was not identical with that of the ducts, for the gall-bladder could hardly contain deep green bile; when the parenchyma was nought but a mass of oil. He concluded, then, that the parenchymal cells of the lobules did not merely secrete bile which was carried off unaltered by the ducts, but that the cells secreted biliary material, or some of its components, which were not fully elaborated or formed into perfect bile, except by the action of the ultimate ducts. Proof was then offered that the hepatic cells did not ordinarily contain bile, although it was commonly held they did. He believed that to be a diseased or exceptional condition, not found in the hepatic cells of slaughtered or healthy animals. Furthermore, a yellow tint in the cells was no proof of the presence of bile; it showed merely the presence of pigment, and yellow pigment is found in the fat of some animals, quite independent of biliary secretion. Chemistry must be resorted to, to solve the question of the presence of bile in the hepatic cells. The author had made alcoholic extracts of the livers of different animals, and having evaporated to dryness, the residue, when dissolved in water, failed to show, by Pettenköffer's test, any reaction characteristic of the presence of the bile. The author, however, did not wish to express a positive opinion, but he thought that the received opinion had need of more direct evidence, before it could be regarded as proved. He then detailed the mode in which the morphological structure of the ultimate biliary duct fulfilled the function of secretion. The chemical changes which the ultimate ducts effected, might be conceived according to the hypothesis of Lehmann; and a summary of our present knowledge might stand as follows: sugar, oil, and a yellow pigment were found in the parenchyma of the liver; bile is not found there, but in the ducts; it is inferred, then, that the ducts, through their ultimate extreme portions, *make* the bile. The author next proceeded to detail some experiments made relative to the action of cholagogue medicines, the results of which led him to believe that mercury, muriate of manganese, and colchicum, were the only ones which seemed to increase the production of yellow pigmentary matter in the cells of the liver. They also increased the production of glyco-cholite and tauro-cholite of soda; but it had to be determined whether the quantity of these principles was always proportionate to the yellow pigment. It was clear that the cholagogue action of a medicine, its emulging effects on the ducts, was distinct from that which it excited in the production of biliary pigment. One very important effect of the administration of mercury on the liver, was noticed to be congestion of this organ; an argument rather forbidding the use of the remedy in inflammation of the substance of the liver, a plan otherwise recommended by analogical experience. The author then passed to the subject of diseases of the liver; the microscopic appearances of fatty liver were detailed, and the question, what constituted true fatty degeneration of the liver, discussed. Was it a simple increase in the quantity of oil naturally existing in the hepatic cells, or was it a further and more important change? He believed the latter. In the liver of animals artificially fed on oily food, and subsequently examined, the cells, as well as the intercellular substance, were loaded with oil-molecules: the accumulation of oil was equal everywhere. But in the morbid state of fatty degeneration, the oil-drops were not enclosed in distinct cells, but appeared to lie in an indistinct and granular, or semi-fibrous substratum. Another point of difference consisted in the absence of sugar in true fatty degeneration; while in the liver of an animal fed on oily food to produce a fatty liver, sugar could be detected. Another point of importance was the limitation of fatty degeneration to the margin of the lobules; it was not a mere accumulation of oil in the marginal cells, but a destruction of those cells: a liver thus affected presented the lobules marked out by a zone of opaque matter. No satisfactory explanation of this tendency of oil to accumulate in the marginal cells could be offered. Fatty degeneration of the liver might occur in very different diseases; it was by no means peculiar to phthisis. Reference was then made to the waxy liver of Rokitansky, with which the author was not sure that he was acquainted. Cirrhosis was then mentioned, and Rokitansky's description quoted, as also that of Dr. Budd, whose views expressed the opinion ordinarily received, but from which the author in some degree dissented. The author believed that an unhealthy nutritive process was the essence of cirrhosis, and might be developed in one of three situations. 1. In the larger and moderate-sized portal canals, excluding only the smallest. 2. In these last and in the fissures. 3. In the smaller canals and fissures, and in the substance of the lobules. The first form produced common *hobnail* liver; the second and third, the tough, firm, dense liver, sometimes termed brawny. The author considered cirrhosis to represent essentially a degenerative process, and to arise from the effusion of an unhealthy plasma, not only in the canals and fissures, where it induced unnatural increase, but also in the external part of the lobules, where it passed into a solid form, and constituted an unmorpho-granular substance, compressing the capillaries and obstructing the secreting cells. The thickening and condensation of the fibrous tissue in the liver were thus not so much the effect of an inflammatory action, as of a low degenerative process, analogous to that which stiffened the valves of the heart and contracted the orifices; and which view the author thought was supported by the results exhibited in a table appended to the paper. The subject of jaundice next received attention. This was a disease that manifestly resulted from the conveyance into the blood of bile pigment, a constituent of the bile which was essentially excrementitious, and intended to be cast out with the fæcal matter. In many cases it existed only as retained excretion; in others it seemed to be formed in excessive quantity, as in the acute yellow atrophy of the liver. Yellow matter was often found in the central cells of the lobules, and, nevertheless, there was no jaundice. It should be borne in mind, that the yellow pigment, as it existed in the cells, did not evidence the presence of biliary matter, of cholic acid, or its conjugates. The yellow matter could be extracted by alcohol, and its characteristic reaction obtained by nitric acid, but Pettenköffer's test decided against the presence of any organic biliary acid. The deep colour of the urine in jaundice depended on the presence of bile pigment solely; no trace of cholic acid was discoverable. The author considered the majority of cases of jaundice to depend on the absorption into the blood, not of completely formed bile, but of one of its constituents only, the yellow pigment; and this might take place in one of three ways: 1, by a mechanical obstruction to the flow of bile into the intestine, through the ductus communis choledochus; 2, from inaction of the elaborating ducts; 3, with or without impairment of the action of the excretory ducts, when an increased quantity of yellow pigment was formed in the parenchyma of the liver.

TUESDAY, JUNE 22.

A MEMOIR ON THE PATHOLOGY AND TREATMENT OF LEUCORRHŒA, BASED UPON THE MICROSCOPICAL ANATOMY OF THE OS AND CERVIX UTERI. By W. TYLER SMITH, M.D., Physician-Accoucheur to St. Mary's Hospital.

THE author first directed attention to the minute anatomy of the os and cervix uteri; and here, at the outset, he was desirous of expressing his warmest thanks and obligations to Dr. Arthur Hassall for his valuable assistance in the microscopical part of the investigation, and without which he could not successfully have prosecuted his researches. The mucous membrane of the os and cervix uteri, like the mucous membrane of other parts, consisted of epithelium, primary or basement membrane, and fibrous tissue bloodvessels and nerves. But as there were some special characteristics pertaining to this tissue, he proposed, for the convenience of description, to examine, first, the mucous membrane of the os uteri and external portion of the cervix; and, secondly, the mucous lining of the cervical cavity or canal. The epithelial layer of the former of these situations was tesselated or squamous, and so arranged as to form a membrane of some thickness: by maceration, it could be easily detached, and it was then found closely to resemble the epithelial covering of the vagina, with which it was continuous. Beneath this epithelial layer was the basement membrane, covering numerous villi or papillæ, which studded the whole surface. Each villus contained a looped bloodvessel, which, passing to the end of the villus, returned to its base, and inosculated with other bloodvessels of the contiguous villi. These villi had been mistaken for mucous follicles, usually described as covering the surface of the os uteri; but the microscope failed to discover any distinct follicular structure in this situation. When a thin section of the surface of the os uteri was examined by a low power, the points of the villi could be seen as dark spots through the epithelial layer. A careful examination exhibited these spots as slightly depressed in the centre, yet nevertheless slightly elevated in their margins, nipple-shaped, and containing red points, which were the terminations of the looped bloodvessels. These appearances were produced by the villi being obscured by their epithelial covering. The thick layer of scaly epithelium, and the villi with their looped vessels, were the principal anatomical features of the mucous membrane of the os and external part of the cervix uteri; and these structures played an important part in the pathological changes which occurred in the lower segment of the uterus in leucorrhœa. Between the margin of the lips of the os uteri and the commencement of the penniform rugæ, within the precincts of the cervical canal, a small tract of smooth surface was usually found, which to the naked eye seemed of more delicate structure than the neighbouring parts, and when examined by the microscope was found to be composed of cylinder epithelium, arranged after the manner of the epithelium covering the villi of the intestinal canal. The cylinder epithelium covered in this situation villi two or three times larger than the villi upon the surface of the os uteri—so large, indeed, as to be visible to the naked eye when viewed by transmitted light. Within the cavity of the cervix uteri, the mucous membrane contained four columns of rugæ, or folds, arranged in an oblique, curved, or transverse direction; and between these columns were four longitudinal grooves. The two sulci in the median line, anteriorly and posteriorly, were the most distinct; and of these, the sulcus of the posterior columns was the most strongly marked. In the normal state, the transverse rugæ, with the fossæ between them, were filled with viscid, semi-transparent mucus; and when this was brushed away, a reticulated appearance, caused by numerous secondary rugæ, was visible. The author gave a very minute description of these four rugous columns, and the furrows between them, which was illustrated by some very beautiful drawings of the cervical canal, displaying the rugous columns and fossæ of the natural size, and magnified nine and eighteen diameters. The latter power showed a large number of mucous fossæ and follicles, crowding the depressions between the rugæ, and the rugous elevations also. The author mentioned that a healthy virgin cervix, of normal size, contained at least ten thousand mucous follicles. This anatomical arrangement secured a vast extent of superficial surface, which was still further increased by the presence of villi similar to those found in the lower part of the cervix: they were found in considerable numbers on the large rugæ and other parts of the mucous membrane in this situation. By this disposal of the mucous membrane of the canal of the cervix, a very large extent of glandular surface was obtained for the purposes of secretion. In effect, the cervix was an open gland: and in the opinion of the author, it was in this part of the utero-vaginal tract that the principal seat of leucorrhœa would be found to exist. There was an analogy here which should not be lost sight of, bearing, as it did, on the pathology and treatment of leucorrhœa, which was, the great similarity which existed between the skin and the mucous membrane of the vagina and the external part of the os and cervix uteri. The resemblance, in these situations, was certainly much nearer to the cutaneous structure than to the mucous membrane of more internal parts. These analogies were strongly confirmed by what was observed of the pathological conditions to which these parts were liable, and by the effect of therapeutical applications. The author dwelt on the fact that the epithelium of the os uteri and external portion of the cervix was constantly squamous, and that the epithelium immediately within the os uteri was cylindrical but not ciliated, but that in the rugous portion of the cervical canal the cylindrical epithelium became ciliated. The mucous secreted by the glandular portion of the cervix was alkaline, viscid, and transparent; it adhered to the crypts and rugæ, so as to fill the canal of the cervix. It consisted chiefly of mucus-corpuscles, oil-globules, and occasionally dentated epithelium, all entangled in a thick, tenacious plasma; it was remarkable for its tenacity; while the mucus found in the lowest part of the canal was thinner in appearance. There was an essential chemical difference between the vaginal mucus and the secretion of the interior of the canal of the cervix; the first was always acid, and the latter invariably alkaline. Mr. Whitehead, of Manchester, had noticed this fact, and the observations of the author confirmed his views. The acid of the vaginal secretion was more than sufficient to neutralize the alkaline secretion of the cervix, and when any secretion from the cervical canal entered the vagina it became curdled from the coagulation of its albumen. It was worthy of note, that that part of the mucous membrane of the uterus and vagina which resembled the skin was the only part which, like the skin, furnished an acid secretion. The vaginal mucus was a simple lubricatory fluid. But the uterine cervical mucus had other uses besides that of lubrication; in the healthy condition, in the intervals of the catamenia, it blocked up the passage from the vagina to the fundus; it thus defended the cavity of the uterus from external agencies, and from its alkaline character afforded a suitable medium for the passage of spermatozoa into the uterus. Having stated his views of the structure of the utero-vaginal mucous membrane, the author expressed his opinion that the glandular portion of the cervix uteri was the chief source of the discharge in leucorrhœa. Leucorrhœa, in its most simple and uncomplicated form, was the result of an increased activity of the glandular portion of the cervix. A follicular organ, which should only take an active condition at certain intervals, became constantly engaged in secretion. Instead of the discharge of the plug of mucus at the catamenial period, an incessant discharge was set up. At first the discharge was but an unusual quantity of the elements of the healthy mucus of the cervix. The quantity increases, and becomes a serious drain to the constitution, and the glandular cervix in some cases becomes so excitable, that any unusual stimulus, even mental emotions, provokes an augmentation. The author next referred to the conditions under which the epithelium of the os and external part of the cervix uteri and upper portion of the vagina might be partially or entirely removed. The mucous membrane then presented an intensely red colour, from the presence of the naked villi, and an appearance of roughness or excoriation presented itself. He thought that among the causes which produced this aspect of ulceration were eruptive disorders, similar to herpes or eczema, which strongly marked the analogy between this tract of mucous surface and the skin. He had observed cases in which an occasional herpetic eruption upon the os uteri always produced herpes præputialis in the husband. But the most frequent cause of denudation arose from the alkaline mucous discharge of the cervix irritating the acid surface of the os uteri, and causing the rapid shedding of the epithelium round the margin of the os. A microscopical examination was given of the various discharges met with in these affections, in making which the author was assisted by Dr. Handfield Jones and Dr. Hassall. In cervical leucorrhœa the discharge consisted of quantities of mucus-corpuscles, and in severe cases pus-corpuscles and blood-discs, with fatty matter, involved in a transparent plasma. The epithelial debris is constantly present, but in limited quantity. In vaginal leuborrhœa, including the secretions of the external portion of the os and cervix uteri, the plasma is opaque, and contains myriads of epithelial particles in all stages of development, with pus and blood globules when the villi are affected. When a circumscribed ulcer is visible upon the os uteri to the naked eye, after death, such as occurs in eruptive affections of the os and cervix, and is examined by the microscope, with a low power, it is found to consist of a base from which the villi are entirely removed, or in which only the scattered debris of villi remain; and surrounding this base there is a fringe of enlarged villi, partially or entirely denuded of epithelium. The character of the so-called ulceration of the os uteri was detailed, and the nature of the discharges described. The author then observed that if any division of leucorrhœa were made, two principal forms must be recognised—

I. The *mucous* variety, secreted by the follicular canal of the cervix.

II. The *epithelial* variety, in which the discharge was vaginal.

With respect to the so-called ulcerations of the os and cervix, two kinds of morbid change would be observed—

1. *Epithelial abrasion*, by far the most common, in which the epithelium alone was deficient.

2. *Villous abrasion*, *erosion*, or *ulceration*, in which the villi are affected by superficial ulceraion.

It was to the villi, denuded of epithelium and partly eroded, that the marked forms of granular os uteri were owing. The ovules of Naboth, often referred to by writers as obstructed follicles, the author had found to be in reality an eruptive disease of the mucous membrane analogous to a cutaneous affection. In these affections of the cervix uteri it frequently happened that the cervix uteri was partially everted, and the deep-red surface covered by vascular villi thus exposed, had frequently been mistaken for breach of continuity in the mucous surface. The author then offered some remarks on the practical deductions which might be drawn from the present investigation. The glandular structure of the parts from whence the leucorrhœal discharge arose pointed to the influence of constitutional causes, and exemplified why this affection should be so common in women of strumous habit and leuco-phlegmatic temperament: it vindicated the importance of constitutional treatment, and directed attention to the more rational employment of topical remedies; and it was evident that the profuse application of caustics, as recommended by the French school of uterine pathology, was both unnecessary and unscientific. He admitted that leucorrhœa of the cervical canal was sometimes cured by the use of caustics to the os uteri, but in these cases they acted as counter-irritants to the glandular structure. The indications of treatment, based on a knowledge of the minute anatomy of the os and cervix uteri, and the study of its pathology in leucorrhœa, appeared to the author to require constitutional medicines and regimen, with local applications. Local measures, to be of any use in cervical leucorrhœa, should be applied, not to the vagina, nor the os uteri, but to the canal of the cervix. In vaginal or epithelial leucorrhœa, common injections were serviceable; but in cervical or mucous leucorrhœa no benefit could result unless the injection passed into the cervix. He mentioned the methods he adopted to secure this result, and concluded by expressing a hope that the prosecution of these researches might prove serviceable, by rendering a troublesome class of maladies more intelligible than they had hitherto been, and by tending to correct errors of practice, and to indicate the just value of constitutional and topical remedies.

[Dr. Tyler Smith's paper was illustrated by a number of beautiful drawings, which excited great attention among the Fellows, representing the novel points described in the paper, and which were made under the superintendence of Dr. Hassall.]

At the conclusion of Dr. Smith's paper, the PRESIDENT observed that he should be happy to hear any observations upon it from the fellows. After a short pause,

Dr. LOCOCK rose and said that he regretted an appointment obliged him to leave the Society immediately, but he could not do so without first offering his thanks, and he was sure he might add the thanks of the whole Society, to Dr. Tyler Smith, for his very admirable paper. He could scarcely remember an occasion on which he had listened to a paper with greater interest, or from which he had derived so much instruction. The present communication was, in his opinion, a step in the right direction, and he felt convinced that researches of this kind would eventually lead to a better understanding and in improved treatment of what was most certainly a very intractable class of disorders. He was glad to learn the author intended to pursue the subject, and he should certainly look forward with great interest to the progress of his further investigations. (Cheers.)

AN ANALYSIS OF ONE HUNDRED CASES OF CANCEROUS DISEASE OF THE UTERUS. By ROBERT LEE, M.D., F.R.S., &c.

THE conclusions to which the author arrived from this analysis were:—1st. That cancer may commence in any part of the mucous, muscular, or peritoneal coats of the uterus; but most frequently in the os and cervix.—2ndly. That the earliest symptoms of the disease, in a large proportion of cases, were discharges of sanguineous, serous, or white-coloured fluid from the vagina, with sense of uneasiness or pain more or less acute within and around the pelvis.—3rdly. That cancerous disease of the uterus presented itself most frequently in the form of induration and ulceration of the os and cervix uteri and vagina, or ulceration without induration, or in the form of fungoid tumours, usually called cauliflower excrescences, growing from one of the lips or the whole os uteri. being often associated with encephaloid or colloid masses and true scirrhus of the remaining portions of the uterus and contiguous viscera.—4thly. That in no case could cancerous disease of the uterus be referred to inflammation; and that its fatal progress was never arrested by cauterizing the morbid structures through the speculum, nor by any other method of treatment.

AN ACCOUNT OF A CASE OF PULSATING TUMOUR, IN WHICH THE URINE CONTAINED CANCER CELLS. By C. H. MOORE, Surgeon to the Middlesex Hospital.

A greengrocer, aged fifty-three, was admitted into the Middlesex Hospital, with a large pulsating tumour in the left groin, and congestion and great œdema of the left lower extremity as well as of the buttock and lower part of the abdomen. The tumour lay precisely in the situation of external iliac aneurism, was smooth and rather firm in most of its surface, but was in part lobulated and soft. As it was so large as to raise the structures above, its beat was visible. The pulsation raised the hand laid on the tumour, expanded it slightly when the tumour was grasped, and was felt more strongly when the femoral artery was compressed. It was stronger at the soft prominences than at other parts of the surface; and the external iliac artery was felt running over its anterior part. The tumour presented a distinct bruit. The first symptom of the disease could be dated at three months before the patient was seen; the pain was severe and of a pulsatile character. The tumour was at first considered to be a mass of enlarged iliac glands; but as in the eight days in which it was observed it increased in size, and beat more vigorously, and thrust out a new lobe from its surface, at the same time that the general circulation became tranquil, it was then presumed to be an aneurism in which part of the blood had coagulated. As the tumour thus rapidly increased, and the pain became very severe, the common iliac artery was tied. The operation performed was similar to that described by Sir Philip Crampton, the external incision reaching from the extremity of the 12th rib nearly to the anterior superior spine of the ilium. The patient survived the operation forty-three hours, and died with peritonitis, failure of the circulation in the limb, and most marked disorganization of the blood. The tumour was the largest of several masses of enlarged glands affected with encephaloid cancer. It lay against the ilium, and was enclosed in thick fascia, which had given way at the soft prominences felt during life. It was somewhat tightly girt in almost a circle of arteries, the external iliac being stretched and flattened along its upper surface and beneath the fascia, the internal iliac lying in contact with its posterior part, and the obturator artery beneath it completed the circle, except where the tumour and pubes intervened between it and the external iliac trunk. Moreover, the large branches of the internal iliac passed through the tumour. There were small secondary cancerous depositions in the kidneys, and an encephaloid growth sprang from the back of the prostate gland (which was otherwise healthy) and extended upwards between the bladder and rectum. This appeared to be the primary growth. Some urine, pressed out through the urethra after death, was examined by the microscope, and was found copiously pervaded with cancer cells. That which had been observed during life, being clear, was not examined microscopically. The author concluded his paper by some remarks on the distinction of pulsating tumours and aneurisms, and on the importance of the last-mentioned fact as a possible means of diagnosis in another doubtful case.

REMARKS ON THE PATHOLOGY OF HYDROPHOBIA, WITH AN ACCOUNT OF A CASE OF THAT DISEASE. By GEORGE ROBINSON, M.D., Newcastle-on-Tyne.

THE author observed that the obscurity of the pathology of this disease gave importance to any additional facts that bore on its solution; and he thought that a case which had recently occurred in his practice, presenting the usual characteristics of this affection, suggested certain conclusions. The author entered at full into the history of the case, which presented nothing novel, whether of symptoms or of the progress of the disorder. A post-mortem examination developed no condition not previously noted in similar cases. There was the usual congestion of the pulmonary mucous membrane, and the tubes filled with a tenacious mucus; the several parts of the enchephalon were vascular and injected; lymph was observed at the base of the brain, on the cerebellum and medulla oblongata; and many red points were observed on section of the substance of the cerebral mass. The conclusions to which these facts led him were—1stly. That the disease, from the moment of its manifestation, essentially consisted in a morbid irritability of certain parts of the nervous system, and particularly of the medulla oblongata and base of the brain. 2ndly. That this morbid irritability and inordinate excitement of that part of the brain most intimately connected with the nerves of deglutition and respiration, in accordance with the known laws of the pathology of the nervous system, produced spasmodic action of the muscles of the glottis and pharynx, and an unnatural sensibility of, and eccessive secretion from, the mucous membrane of the pharynx and fauces, 3rdly. That the exhaustion consequent on the spasms thus excited, and the asphyxia ultimately induced by the introduction into the air-passages during inspiration of the viscid mucus thus copiously secreted, were the immediate causes of death. In regard to the treatment of this disease, the author thought, that, from the general symptoms, as well as from the most simple views of its pathology, the propriety of tracheotomy in the first stage could not be questioned. He considered that this operation would prevent the accumulation of viscid mucus in the trachea; he was disposed to follow up this act by the use of terebinthinate, and subsequently of anodyne and antispasmodic enemata, and when practicable a general vapour bath.

An abstract of a case of biliary fistula by the same author was also read. It occurred in a woman, the wife of a pitman, aged sixty-four. Severe gastric and dyspeptic symptoms, followed by jaundice, ushered in the appearance of a tumour in the epigastric region. This tumour gradually softened, fluctuated, and pointed; after a time it was deemed advisable to relieve her by opening this prominent indication of abscess, and two quarts of a bright yellow, very offensive liquid, a mixture of bile and pus, escaped from the wound. The symptoms of the patient underwent immediate improvement; no constitutional disturbance followed; a good diet, with beer and cinchona, rapidly improved the general health; the discharge quickly decreased, and the opening made by the lancet simultaneously contracted. Three months afterwards, a yellow discharge continued from the fistulous opening, and which constituted her chief complaint, as her general health permitted her to engage in the least onerous of her domestic duties. By means of a suitable glass retained over the opening, a quantity of this yellow fluid was collected and submitted to Dr. Bence Jones for examination, who pronounced it to be pure bile. The amount of the discharge varied under different circumstances and at different periods. The quantity was estimated at eight fluid ounces daily. The flow was more rapid after meals, also during the erect position; it was augmented also by straining or coughing. The alvine dejections had not recovered their natural colour, being light clay-coloured, many months since the opening was established. Of late, the patient had become much more reduced. At the last visit, the discharge of bile was as copious as in the early date of this fistulous opening. Rapid emaciation was proceeding, which the author thought partly due to the withdrawal of her beer and adequate nourishment, but nevertheless aided by the profuseness of the biliary discharge.

This being the last meeting of the Society for the session, on rising, the president adjourned until the first meeting in November next.

MEDICAL SOCIETY OF LONDON.

SATURDAY, MAY 29, 1852.—MR. BISHOP IN THE CHAIR.

NEW MODE OF APPLYING MEDICAL SOLUTIONS TO THE LARYNX.

DR. THEOPHILUS THOMPSON exhibited to the Society an instrument which he is accustomed to use for the purpose of making applications to the interior of the larynx. It is a syringe having a small glass cylinder and a silver tube, slightly curved, and at its extremity expanded into a globe about a third of an inch in diameter, perforated all around with numerous very small apertures. The piston rod is surmounted with a ring, into which the thumb can be introduced, so as to work the instrument steadily. The tongue of the patient being held down with a spatula or with the finger (whether the epiglottis can be seen or not,) the extremity of the tube is readily introduced, and the solution injected. The conditions of larynx in which Dr. Thompson finds most occasion for this instrument, are those which are benefited by nitrate of silver; and he usually employs about half a drachm of the solution recommended by Dr. Horace Green, containing two scruples in the ounce of water. Dr. Thompson remarked that patients and practitioners seem agreed in the impression that advantage is derived from such an application, and he considered this mode of introducing it less rough and disagreeable than the curved probang with a sponge at the extremity, as used by Dr. Green, and more precise in the direction of the fluid than the forceps, having one blade armed with a sponge, as ingeniously contrived by Dr. Cotton. Dr. Thompson was indebted for the suggestion to Dr. Boott, who mentioned to him having seen in an American newspaper the notice of a syringe employed for the same purpose by Dr. Asa Warren, of Boston.

Dr. OGIER WARD said that some time ago he had contrived a syringe similar to the one exhibited by Dr. Thompson, but he had not made it public.

FOREIGN BODY IN THE CÆCUM.

Dr. **CRISP** briefly referred to a case of peritonitis which terminated fatally, and which had its origin in the impaction of two little bodies in the appendix vermiformis. The patient had been in the habit of taking large quantities of soda and magnesia. He had not examined these bodies, but believed that they were composed of these materials. A pathological specimen was exhibited.

Dr. **OGIER WARD** exhibited what appeared to be an

APOPLECTIC CLOT FROM THE BRAIN OF A BOY FOUR YEARS OF AGE,

who died on the seventh day of an attack of purpura. The child was chastised at school, but not severely, on the 14th May, and the purpura broke out on the 17th, in the form of red spots of various tints all over his body and limbs, and numerous ecchymoses confined to the posterior surfaces, except one on his forehead. Dr. Ogier Ward saw him only once (on the 21st May), when he seemed in perfect health, except the presence of the eruption, and he remained so till the morning of the 24th, at four A.M., when he got up to the night chair, but passed nothing. At nine A.M., he complained of his head, and vomited, and the pain and sickness continued till the evening, when he became comatose, and died at ten P.M., having shown no signs of paralysis till just before death.

Post-mortem examination sixty-four hours after death.—Almost the whole of the left corpus callosum was occupied by an immense extravasation of blood, surrounded by softened brain more or less infiltrated with blood. In the centre was a portion quite loose of more solid consistence, which, when removed, and cut through, exhibited a central vessel, of the diameter of a probe, surrounded by fibrine a line in thickness. Upon maceration, the mass was found to consist apparently of a portion of brain infiltrated with blood, and not of a coagulum, for numerous vessels could be seen with open orifices on the divided surface, and a microscopic examination also exhibited the minutest capillaries in an unaltered state. Though the extravasation was so extensive, it had not penetrated the ventricle, and the rest of the brain and its vessels were quite healthy. Dr. Ogier Ward attributed the origin of the sudden purpura to the fright of the 14th, as he had known a similar effect produced in a child in the course of a few hours, from a similar cause. He considered the ineffectual straining at stool to have been the efficient cause of the extravasation, which, by its gradual advance, prevented any rupture of the substances of the brain.

Mr. **GAY** detailed the following particulars of a case of

MALIGNANT ULCERATION OF THE MAMMA.

S. W——, aged thirty-seven, a small, delicate-looking woman, admitted July 11, 1851, into the Royal Free Hospital. Had been married seven years; was the mother of several children, and enjoyed good health until about ten months since, when, during an attack of cold, attended with a most severe cough, her attention was drawn to some soreness which she felt in her left breast. She became pregnant at this time, and subsequently noticed that the affected breast was larger than the other. This caused her to apply to a medical gentleman, who pronounced that the breast was cancerous. (Mr. Paget saw it about this time, and was of the same opinion.) The increase of the breast in size, in consequence, it is presumed, principally of utero-gestation, was attended with *severe* pain; indeed, her sufferings were so severe that she did not as usual heed the pains of labour. Ten days after her confinement, she was removed to a metropolitan hospital, where ice was, according to her account, kept continually applied for more than a week. (The integuments of the breast had become of a dull purplish colour prior to the application of the ice.) After a fortnight she was taken to the Royal Free Hospital. The left mamma was about double its ordinary size, of a uniform dull bluish or purple colour, smooth on the surface, having the nipple erect, immovably fixed to the parietes of the chest, and cold. An unhealthy-looking, small ulcer was situated just beneath the nipple, which had but just made its appearance. The skin immediately surrounding the breast was of the same colour, which gradually shaded away into the colour of the healthy skin. The pain was excessive. Her condition and that of the breast almost remained stationary until the 22d, when the ulcer became a kind of deep fissure, extending across the breast as far as the edge of the arm-pit. From this time pieces of sloughy and decomposed tissue began to separate; these became larger as the destructive process extended deeper. On the 27th, large masses of the pectoral muscles came away; and on the 28th, it was evident that an aperture had formed into the pleura. Portions of two ribs were now brought into view, and these became necrosed, whilst the joints with the sternum were found, on post-mortem examination, (six days after,) to have become completely destroyed. The wound increased in size in most directions, whilst in the upper part there were indications of healthy granulations. Her breathing became more laborious; her strength failed; and she died on the 3rd of August. The wound, as observed after death, occupied the whole of the pectoral region, and ran back into the axilla; and the sloughing by which the breast, the integuments, the muscles, the bones, and the pleura pulmonalis, became successively invaded and destroyed, occupied altogether but twelve days. Mr. **Gay** said that he was indebted to Dr. Marsden, under whose care this patient was, for having had the opportunity of making the foregoing observations. Drawings illustrative of the progress of the disease were exhibited.

Mr. **Gay** also related the following case of

TUMOUR OF THE ARM.

Mrs. G——, aged fifty-eight, presented herself to me about a month since, with a tumour of the fore-arm. It commenced about two years before, in the upper part, and gradually increased to the size it has now attained,—fifteen inches and a half in circumference. The whole of the fore-arm is enormously enlarged, obviously by a growth occupying a situation beneath the superficial muscular masses and vessels. It is uniformly hard, slightly elastic, and attended with severe pain at times, although she does not suffer materially from its being pressed upon. Large, bloated veins are seen creeping along the integuments, whilst the elbow-joint and fingers are immovably flexed. The axillary glands were healthy. The general appearance of the patient was unhealthy; her skin was jaundiced, tongue furred, pulse quick, and her bowels constipated. The case reminded me forcibly of one, in every respect, as far as the external indications were concerned, similar, which was under Mr. T. Wakley's care some time since, in the Royal Free Hospital, an account of which, accompanied with drawings, appeared in The Lancet. I felt little hesitation in looking upon this as a case of encephaloid disease, as it turned out to be in Mr. Wakley's case: and looking at the condition of the patient, I recommended, after improving her general health by a suitable course of medicine, that the limb should be amputated. She cheerfully submitted to the operation, which was done with little loss of blood. The muscles, as they were cut through, presented the unusually dark appearance which is, as far as my experience goes, common in persons with malignant disease, and a considerable number of vessels required ligature. The patient is doing remarkably well. On dissecting the arm, the superficial muscles were found to be spread out in one thin layer over the tumour. The tumour itself was found occupying the whole of the fore-arm, lying between these and the deep flexors, very loosely connected by fine cellular tissue to the structures which enveloped it. The median nerve was attached along its back part, and, indeed, situated in a superficial groove which it had formed for itself in the substance of the tumour. On cutting through, it *appeared to the sight* to be made up of two lobular masses, closely connected with each other; the one, in every respect resembling colloid, the other encephaloid, cancer. The microscope, however, could not discover any traces of the usually acknowledged cancer cell; and, according to Mr. Paget, by this test it would seem to be a simple fibro-cellular tumour. According to my own observation, it was composed of areolar tissue, in large quantity, small fat-granules, and peculiar laminæ, in the forms of irregular-shaped discs, without nuclei or granules. These laminæ were found especially in those parts of the mass which had a cream-like, encephaloid appearance, and not in the transparent, gelatinous, greenish portions, which had a very distinct colloid look, and contained areolar tissue alone.

Mr. Gay informs us, that since the case was related to the Society, Dr. Richard Quain has examined a portion of the gelatinous matter of the tumour, and that the following is his report thereon:—

"I find the gelatinous portion of the tumour composed of an extremely fine filamentous tissue, forming a loose web, which is probably infiltrated with some serosity, so as to cause this jelly-like appearance. There are diffused through it a few cells, about the size of the white blood-globules, filled with minute granules. There are also some oily particles. The opaque substance is composed almost entirely of cells, which are arranged in rows and laminæ, so as in some degree to constitute fibre-like bundles. These cells are separated with difficulty from the texture, but when seen they are multiform, small-sized, granular, and nucleated. There is much fatty matter in various points. There is nothing which would lead me to assert positively that this is a non-malignant tumour; indeed, general appearances incline the other way. The case is one which is worth watching."

LARGE OVARIAN CYST; REMOVAL.

Mr. I. B. **Brown** exhibited a large multilocular cyst, which he had lately removed from a young married woman at St. Mary's Hospital, by extirpation. A firm band of adhesion existed, about a quarter of an inch in width, attached to the middle lobe of the cyst anteriorly, and extending in the right hypogastric region, where it was firmly adherent to the parietal walls. This band was divided to enable the mass to be removed, and no blood appeared to flow; but the patient gradually sank on the third day after the operation, and a post-mortem examination discovered that the band of adhesion contained two blood-vessels, and from these had flowed fourteen pounds of blood, which was surrounding the bowels and occupying the pelvic cavity, most of it in a fluid state, some of it in coagula. The ligature around the pedicle was so firm and tightly applied, that it was impossible that any blood could escape from the vessels there. This cause of death was of great practical interest, and Mr.

Brown stated that he was not aware of a similar case, and it was therefore of importance to be known by every surgeon who performed ovariotomy.

Dr. S. W. J. Merriman read a paper on

ARTIFICIAL DILATATION OF THE OS UTERI.

The author, conceiving that the true principles of midwifery have recently been assailed, gave, concisely, arguments from various sources, why it is improper to accede to the proposal to use the fingers as dilating agents in the first stages of tedious labours. No accoucheur can attain true celebrity, he said, who is unable to discriminate between the two principles of action—viz., when to leave the case entirely to nature, when to render aid. He first referred to the opinions of ancient and almost modern writers, who all advocate this plan of treatment by manual dilatation, and stated that their habit of speaking of the os externum vaginæ as the os uteri, and their belief that the child by its own efforts conduced to the opening of a passage for itself, rendered their advice useful only as a matter of history, not as a rule of practice for the present day. He expressed his surprise at finding such recommendations brought forward at the present time, the reasoning on which the advice was founded being so completely at variance with what we know to be the real state of the case. He then proceeded to the writings of accoucheurs published 100 years ago, and stated that the same advice was found in them, coupled with much else that is now obsolete, because injurious. The learned Smellie, who did so much for the practice of midwifery, was instanced as having gravely recommended and practised dilatation of the os externum by the hand formed into a conical shape, in order that he might pass his hand flat between the head of the fœtus and the os uteri, believing that to be the best way of preventing "the os uteri being pushed before the head of the child." That such advice should be followed, or even referred to as evidence of the applicability of the practice, was inconceivable, especially when coupled, as it is, with recommendations to press back the os coccygis to make room; the principle of Smellie's usual conduct being to do as much as possible himself, and to leave very little to nature. Passing on to modern authors, he showed that Burns expresses his belief that the first stage of labour, or the complete obliteration of the os uteri, should be accomplished in a certain time; and that Dr. James Hamilton limited the time to twelve or fourteen hours of constantly-recurring pains, and recommended artificial dilatation by the fingers if the complete opening of the os were likely to be delayed beyond that time. This brought us to a reason alleged which could be fairly considered—viz., that danger necessarily accrues if the labour last many hours—over twenty-four hours, for example—the term usually assigned to a natural labour. This doctrine he controverted in the following manner. Allowing that Professor Simpson's analysis of Dr. Collins's tables shows that danger to life does increase as the duration of labour is prolonged, he did not consider that danger of much moment, compared with the very great majority of perfectly natural labours of short duration; the question being rather, whether dilatation by the finger does not produce as much injury as the prolongation of the labour would. He brought forward the following statistics from Dr. Collins, that out of 15,850 labours of all kinds, the period of which was noted, 13,412 were over within six hours; 1672 additional within twelve hours; and only 766 were prolonged to twenty-four hours; the total mortality being 158. Dr. Joseph Clarke, of Dublin, attended at 3878 births, in his private practice, and lost none from the effects of protracted labour. In his hospital practice he enumerates 9748 ordinary labours over within twenty-four hours, with 71 deaths, and only 183 similar cases prolonged beyond that time, 37 of whom died; but 49 had required craniotomy to be performed, the head being impacted. The author says, "We have therefore very strong reasons for being in no hurry to hasten the progress of labours, seeing how very large a majority terminate speedily, and how trifling the mortality is from the mere length of time occupied." Pressure by the fingers could not, it was shown, act on the os uteri like the bag of waters, or the head when moulded into a lengthened shape. There could be no reciprocal action between the force pressing upon the cervix and the power of the uterine structure to endure the pressure. The accoucheur cannot tell by the mere motion of his finger what amount of space there is for the head to occupy: and he will seldom succeed in keeping up the lip of the os, except in the last moments of a protracted first stage of labour. Fissures of the os uteri in labour, with enlargement and ulceration, so called, of the cervix, about which so much has lately been said, were briefly alluded to; the cause of these post-parturient complaints being considered a want of tone in the uterine vessels, contraction not duly taking place after labour, or, in other terms, there being a want of re-absorption of the enlarged uterine structure. The author considered that pressure on the os uteri in artificial dilatation must bruise the part, and render it unable to resume perfectly its pristine condition. The os is treated as if not possessed of sensibility; the sensibility to external objects may be slight, but the distribution of nerves of the organic class is abundant, and they cannot fail to receive injury, and so impede the return of the part to a healthy condition. The necessity of bleeding and tartar-emetic to overcome congestion, where pressure has been exerted on the os uteri, pushed down before the head, was also briefly alluded to, as an argument against using artificial pressure in ordinary cases. The author proceeded as follows:—"The temptation to endeavour to hasten a slow labour where the patient resides at a distance, where the fee is small, and a sufficient income can only be got by incessant occupation among a number of patients, is too strong to be resisted; the smallest concession to the desire to afford manual assistance in some peculiar cases is certain to be extended to others, where the necessities of the practitioner are so many. We ought therefore to set our faces boldly against any proposals, the following of which is likely, almost certain I might say, to be injurious to the mother." Then suggesting that the "passing the finger gradually round the os uteri" may produce its effect in a secondary way, by enabling the accoucheur to regulate the mother's expenditure of force upon her uterine organs, by observing whether her powers are equal to the task, and giving nourishment or medicine as required, he concluded thus:—"I look upon labour as essentially a natural, healthy process, yet verging upon disease. The accoucheur's business is to preserve health, not to promote disease; he may hasten a labour by interference, but the interference of dilatation of the os uteri by the finger ought not to be made, except there is that amount of pressure upon the anterior lip of the uterus which would soon bring on congestion if it were not moved out of the way."

TOPICAL MEDICATION OF THE LARYNX.

Dr. Cotton brought under the notice of the Medical Society of London a new method of applying a solution of nitrate of silver, or any other substance, to the laryngeal mucous membrane. After making a few remarks upon the practice of introducing a piece of sponge *within* the larynx, which he believed to be not only practicable, but, in the majority of cases, useful, and always with proper precaution harmless, he had, nevertheless, become convinced, from a number of experiments at the Consumption Hospital, that it was better merely to drop the solution into the laryngeal opening. This was easily accomplished by means of the simple instrument he presented to the Society, which was made by Mr. Coxeter, and consisted of a pair of forceps slightly curved, and having a small piece of sponge attached to one of its blades. By depressing and slightly drawing forwards the tongue by the ordinary spatula, the extremities of the blades might be held over the larynx, and at the proper moment the contents of the sponge could be squeezed into it. Dr. Cotton had used it successfully in a considerable number of cases, and had found that it was generally less disagreeable to the patient, and produced less spasm and cough, than the ordinary method of passing down the sponge itself; whilst it possessed the obvious advantage of making it impossible that the sponge could ever fall into the larynx, the closing of the forceps effectually holding it. The sponge would contain about half a drachm of fluid, nearly the whole of which might, if desired, be applied to the laryngeal membrane and its neighbourhood, the cough which invariably followed its use always ensuring its diffusion."

Reviews and Notices of Books.

Animal Electricity; being an Abstract of Dr. Du Bois-Reymond's Discoveries. Edited by H. B. Jones, M.D., F.R.S., Physician to St. George's Hospital. 8vo, pp. 214. London.

The most important discoveries which Dr. Du Bois-Reymond has yet published may be divided into three classes:—

1st. Regarding the electrical action of the muscles: for example, the action of the minutest particle of a muscle, even of a muscle from a recently-amputated human limb.

2nd. Regarding the most important effect of contraction upon the electrical action of the muscles, proving that the electrical action is changed when the muscle is in a state of action. Having discovered this in the muscles of a frog, by producing tetanus in various ways, Dr. Du Bois considered that it was possible, by voluntary contraction in man, to imitate the phenomena which the frog exhibited. Notwithstanding the interference of skin currents, and the greatly increased resistance introduced into the circuit, still effects were produced which were most remarkable, and convinced a commission appointed by the French Academy of the truth of the explanation which the author announced.

3rd. Regarding the electrical action of the nerves. Remarkable facts, page after page, are here made known to us, and the closest relation between electrical and nervous action, will, without doubt, ultimately be established.

An excellent summary of the conclusions ends this little volume. Well has the Berlin physician deserved the highest scientific honour which could be conferred upon him at home, in being elected a member of the Berlin Academy.

Animal electricity will evidently, with animal chemistry, form the future basis of physiology, (without alluding now to their relation to pathology and therapeutics,) yet how few in England have we competent to advance our knowledge of these interesting subjects. Surely physics and chemistry should be, and will be, required, instead of Greek and Latin, to enable our students at least to comprehend the progress of science abroad, even if they cannot help to advance it at home.

The College of Physicians, by doing nothing, and the College of Surgeons, by doing wrong, are answerable for the non-cultivation of these and other important branches of knowledge.

To galvanize the almost defunct College of Physicians might afford some pleasure, but promises little profit. But in the College of Surgeons, Anatomy and Histology must be vivified by chemical and electrical physiology, from which a new and true pathology will undoubtedly arise.

On the Anatomy and Physiology of the Male Urethra; and on the Pathology of Strictures of that Canal. By Henry Hancock, F.R.C.S., Senior Surgeon and Lecturer on Surgery; Charing Cross Hospital, &c. Highley and Son, 1852. pp. 86.

The profession have been made extensively acquainted with Mr. Hancock's views and discoveries, as to the physiology and pathology of urinary affections, by the Lettsomian Lectures, which were published in this journal a short time ago. The book before us presents, in a compact form, the three lectures, accompanied by very excellent engravings on wood, which tend to render the work more useful and acceptable.

We have to congratulate Mr. Hancock upon one thing, and that is, that for the size of the book we have never seen a greater proportion of original matter; and on rising from a perusal of these lectures we feel proud of the services which an English surgeon is rendering to science. Nor is the subject at all of a restricted or unimportant nature, as will be seen by the introduction to the third lecture. "Having, in the preceding lectures, endeavoured to explain the structure of the urethra, and the physiology of micturition founded upon the improved knowledge we possess of such structure—having endeavoured to explain the healthy functions of the bladder and urethra,—I propose to call attention, in the first instance, to cases of departure from these healthy functions of simulating stricture; and, subsequently, to offer a few observations upon certain points connected with the pathology of the actual and permanent form of that disease." Now, many of our readers will be surprised when they hear that these comprehensive subjects, upon which hundreds of pages might easily be written, have been treated in a superior and *original* manner in eighty-six. This is certainly good news for the hard-worked country and urban surgeons, who thirst after knowledge, but who shudder at the sight of big books.

The author prefers the term "transitory, or temporary, impediment," to "spasmodic stricture," and believe that "the impediment to the passage of urine very frequently results from some lesion of function, without any organic or structural obstruction existing even for a time." He says very justly, that "the attention of the profession has been so much restricted to the permanent form, that it has almost become a matter of course to consider difficulties of passing urine as dependent upon organic impediment, or changes of structure, and closure of the canal, and treatment founded upon this error is commonly resorted to, to the too frequent detriment of the patient."—p. 3.

Now, it cannot be denied that we are in general too little inclined to inquire about the *cause* of the difficult micturition; narrowing of the canal is but too often at once assumed to exist, and we put our weapons forward to dislodge the enemy.

But let us see which are the causes of stricture which Mr. Hancock describes. And, first, as to temporary impediment. This may be owing to

> "The influence of the mind; mental anxiety; general irritability; nervous excitement; indigestion, and torpid action of the liver. Inflammation on the one hand, and want of tone on the other,—influenced also by various conditions of the urine."

As to the permanent form, it may be owing to

> "Actual disorganization; diseased condition of the urethra; the deposit of new structure; the presence of calculi; enlargement of the prostate gland."—p. 4.

That the treatment should, therefore, be carefully regulated by the *causes* of either form, stands to reason; and we fully concur with Mr. Hancock, when he says

> "To propose, therefore, to treat such a disease by one process,—whether by constitutional remedies; the usual one of gradual dilatation, or the more recent one, of rapid and forced dilatation; the application of potassa fusa, or caustic; internal division, whether superficial or deep; or the no less heroic plan of perinæal section,—is to take an unphilosophical and narrow-minded view of the subject, and one which no efficient and sound practitioner would be willing to admit."—p. 5.

As we stated above, Mr. Hancock founds his practice upon a conscientious study of the anatomy and physiology of the bladder and urethra,—which study he zealously pursued with the aid of the microscope. In the discovery of muscular fibres about the urethra, it has been thought that our author was forestalled by Kölliker; but the former, after quoting the German professor, shows very satisfactorily that he (Mr. Hancock) is fully entitled to the credit of the discovery.

> "I claim," says the Lettsomian lecturer, "the credit of having done what Kölliker has omitted to do—traced these muscular fibres continuously from the inner and outer layers of the muscular coat of the bladder to the distal orifice of the urethra, showing of what the lips of the urethra consist. I have shown that the vesicles and ducts of the prostate gland are surrounded by the muscular fibre, those of the ejaculatory ducts being derived from the muscular coats of the vas deferens. I have shown that the spongy portion of the urethra has its muscular membrane or coat equally with the other regions of that canal; and I have also proved that we cannot correctly regard the whole corpus spongiosum as a highly developed muscular layer, but as consisting of two muscular layers, with an intermediate layer of erectile tissue."

The discovery of these facts is certainly of great importance in the pathology of stricture, and Mr. Hancock deserves the cordial thanks of the profession for the zeal with which he pursued his investigations. We would fain follow him in his explanation of true spasmodic stricture, and the seat of that affection, as well as in various other observations of importance, but we must refer our readers to the book itself; and, finally, quote the author's views as to ordinary micturition.

> "This may be considered," says Mr. Hancock, "to be performed by the bladder and urethra combined, not by the bladder alone, or by the urethra alone, but by the two together, assisted to a certain extent by the abdominal muscles. From ignorance of the existence of muscular fibre around the urethra, opposing actions have been ascribed to the bladder and the urethra; that of the former being expulsive, that of the latter retentive, or merely passive. The bladder has always been considered a species of reservoir, capable in health of retaining urine, and by its contraction, of expelling it when required to do so; whilst the urethra has been looked upon as a kind of passive tube, capable of expansion merely, but exerting no direct influence upon the expulsion of the urine. These organic muscular fibres, however, point out to us that the urethra is not a tube of this passive character—that it does exert considerable influence over the function of micturition; whilst the connexion of these fibres with those of the bladder would suggest combined, instead of opposed action of the parts, and tend to controvert existing theories upon the subject."—p. 38.

To strengthen his position, Mr. Hancock establishes very ingenious analogies between the reciprocal functions of the bladder and urethra, the stomach and the intestines, the heart and the arteries, the trachea and bronchi, kidneys and ureters; to all of which the organic muscular fibres are confined.

Mr. Hancock has entered fully into the consideration of the normal or healthy retention of urine in the bladder, and the physiology of micturition, in the latter portion of the second lecture. In the third, the cases simulating stricture are examined; it is shown that "whatever interferes with the nervous system influences the functions of the urinary organs." Retention may be caused by the influence of the mind, the aberration of the mental faculties, and also by the voluntary muscles of the urethra and perinæum. It may also result from the approximation of the rugæ or folds of the urethra, described by Mr. Quekett; by a relaxed and flabby urethra, and from local irritation in the parts adjacent to the bladder.

As to permanent strictures, the author says, regarding their formation,—"We find, notwithstanding the prevailing opinion to the contrary, that these strictures are formed in two ways:—first by a deposit of false membrane upon the free surface of the urethra; and, secondly, by the thickening of the mucous membrane itself, the effusion of lymph into the subjacent cellular tissue and other structures producing consolidation and thickening of the several parts, which press in upon the mucous membrane, push it inwards, and thus constrict the canal, diminishing its calibre."

But Mr. Hancock believes that by far the greater proportion of permanent strictures depend upon *adventitious membranes*. He remarks, finally, that the thickening of the bladder is not due so much to the hypertrophy of the *muscular*, as of the *cellular* coat of that viscus.

We have thus faintly delineated the principal original views of our author; and we feel convinced that the more they are considered and discussed, the more will Mr. Hancock's professional brethren be inclined to do justice to his indefatigable spirit of investigation, touching affections of so common occurrence. This concise book will certainly be extensively and attentively read, and the Medical Society of London must be congratulated upon the choice of its Lettsomian professor of surgery for 1852.

On Diseases of the Liver. By George Budd, M.D., F.R.S., Professor of Medicine in King's College London, and Fellow of Caius College, Cambridge, pp. 486. London.

"In writing a book on Diseases of the Liver," says Dr. Budd, "I shall hardly be accused of having undertaken a needless task. There are no other diseases of such frequent occurrence, which it is so difficult to discriminate, and for the treatment of which the practitioner has so few trustworthy guides. There is, again, no class of diseases at all equal to this in importance, on which so few treatises have lately been written." Now all this is very true, if we make allowance for the small spice of exaggeration which will creep into the language of any one who makes his own estimate of a subject in the investigation of which his faculties have been long and successfully absorbed; and even if these diseases were less important, less obscure, and less difficult to treat than they are, we should be glad to re-welcome in another edition, a work, which, by teaching us what is true, will help to rid us from the everlasting wearisomeness of hearing that "the liver is out of order," when the poor liver is altogether exempt from blame.

Dr. Budd begins with a full analysis of those anatomical and physiological principles, without the knowledge of which any speculations on the pathology of the liver would be eminently empirical. His remarks on this subject will be useful to all, but especially so to practitioners who, having passed into practice before the time of the discoveries of Kiernan and Bowman, with their German and English co-workers, may have neglected to make themselves perfectly acquainted with views which are now fully taught in all schools and colleges of medicine.

Having thus paved the way, he then passes to the proper subjects of enquiry, beginning with the diseases of an inflamatory nature; and it is to his general views on inflammation, and to that variety of this condition which terminates in suppuration and abscess, that we propose to confine our remarks, though we would gladly, if space allowed, refer to other topics.

"The inflammatory diseases of the liver," says Dr. Budd, "are usually divided into *acute* and *chronic*: but this division is essentially faulty in practice, because the terms are applied, not with reference to the kind of inflammation, or the rapidity with which it works its effects, but to the severity, merely, of the local symptoms. Now inflammation of the liver, running rapidly into abscess, if deep-seated and of small extent, may give rise to but few and obscure local symptoms, and would consequently be styled *chronic* during the life of the patient; which inflammation involving the surface of the liver, even when causing the slow effusion of coagulable lymph only, will be attended with well-marked local symptoms,—with great pain and tenderness,—and would be termed *acute*. We shall never have faithful descriptions of inflammatory diseases, or unerring rules for their treatment, until we arrange them, not according to their mere outward characters, or the prominence of particular symptoms, but according to the nature of their causes; for it is a truth that cannot be too strongly enforced, that it is the nature of the *cause* of an inflammatory disease that mainly determines its course and character, and the influence of remedies over it."

Dr. Budd's views on suppurative inflammation and abscess of the liver, which were delivered ten years ago in the Gulstonian Lectures, at the College of Physicians, are still more deserving of attention. According to these views, these affections (except in those rare cases where they have resulted from external violence) are caused by contamination of the portal blood, chiefly dependent upon dysentery, and occasionally upon ulcerative affections in the small intestines, gall-ducts, or stomach—the parts, in fact, from which the portal veins take their origin; and the manner in which he establishes this point, from the joint teachings of experiment, analogy, and observation, is especially beautiful. For the arguments we must refer the reader to the work itself, merely selecting, as a sample, those which will enable us to dispose of the debated question of the connexion of hepatic abscess and dysentery. Mr. Annesley thought the contemporaneous or antecedent existence of the liver symptoms an objection to the dependence of these symptoms on dysentery; and Dr. Budd thus puts aside this difficulty:—

"The circumstance that the symptoms of liver disease appear as soon, or nearly as soon, as those of the dysentery, does not prove that the former disease is not dependent on the latter. In the case above cited from Cruveilhier, in which abscesses in the liver were caused by the rough handling of a prolapsed rectum, the symptoms commenced almost immediately after the injury; and at the end of five days, when the man died, the matter in the abscesses were fully formed. After an amputation or injury, inflammation of a vein may occur, pass into suppuration, and contaminate the system, in less than forty-eight hours. Supposing, then, the suppurative inflammation of the liver to be excited in the same way in dysentery, it might be expected that the symptoms would, in some cases, appear almost as soon as those of the primary complaint.

"But in India it sometimes happens that the symptoms of liver disease precede those of dysentery. This, also, is what might have been expected.

"In India, derangements of the liver, consisting in excessive and perhaps vitiated secretion of bile, and inflammation of the gall-ducts, are very common,—the consequence, it would seem, of the heat of the climate and the free living in which the English in India indulge.

"Adhesive inflammation of the liver, terminating in induration and cirrhosis, is also very common there, as in this country, from spirit-drinking. Now, though neither of these disorders may terminate in suppurative inflammation of the liver and abscess, yet they present nearly the same symptoms, and may readily be mistaken for it. If, then, a person with any such derangement of the liver should be taken with dysentery, and have abscess of the liver in consequence, it is very natural that the dysentery should be ascribed to pre-existing suppurative inflammation of the liver.

"If the explanation I have offered be rejected, we are almost driven to conclude, as Annesley does, that the dysentery in all these last cases is caused by the passage of irritating bile. Now, if this were the case, we should expect to find the most evident marks of disease in the gall-ducts and upper parts of the small intestine—parts with which the irritating secretion comes first in contact; but instead of this, these parts are almost always perfectly healthy in cases in which the abscess in the liver is associated with the most destructive forms of dysentery. The whole of the large intestines may be a complete slough, while the gall-bladder and gall-ducts, and the small intestine, almost down, or even quite down, to the ileo-cæcal valve, are perfectly healthy, and the bile in the gall-bladder is of its natural consistence and colour." . . .

"There is no doubt that a copious flow of irritating bile may cause diarrhœa, and may prevent the ulcers of dysentery from healing; it may perhaps cause ulceration of the bowel; but it is very improbable that it causes the early and extensive ulceration and gangrene of the large intestines which occur in Asiatic dysentery, and often destroy life in a few days, while the small intestine, almost in its entire length, remains perfectly healthy,

"The more probable explanation is that I have before given—namely, that in these cases the patient had some derangement of the functions of the liver, which was followed by dysentery, and then by abscess; and consequently, that in all the cases, or in most of the cases, in which abscess of the liver and dysentery are associated, the former disease is the consequence of the latter.

"If irritating bile cause ulceration of the intestine, it may be the remote cause of the abscess of the liver, through the disorder it occasions in the intestine."

In conclusion, we would say that Dr. Budd's work is full of everything connected with diseases of the liver. The practitioner will find abundant instructions upon symptoms and treatment, and the lovers of philosophical pathology and morbid anatomy, and of chemico-medical investigation, will each find material for his peculiar predilection. We hope the specimen we have exhibited will induce many to search the work for themselves.

Physiological Researches. By Sir BENJAMIN C. BRODIE, D.C.L., F.R.S., Corresponding Member of the Academy of Sciences of the Institute of France. Collected and arranged from the "Philosophical Transactions." pp. 146. London: Longman & Co. 1851.

IN the brief preface to this interesting volume the author tells us, that in collecting his physiological papers he has taken the opportunity of offering, in the form of notes, a few additional observations, some of which confirm, while others modify, his former conclusions. It is evidently with something akin to regret that he observes, his busy engagements in the duties of the profession have long prevented him from pursuing those researches to which his earlier years were so ardently devoted.

The first essay of the volume is the Croonian Lecture, on the Influence of the Brain on the Action of the Heart, and on the Generation of Animal Heat, extracted from the *Philosophical Transactions* for 1811. The fourth and last essay, that on the Effects of Mineral Poisons, is from the *Transactions* for 1812; so that two busy years comprised the physiological publications of Sir Benjamin Brodie. In this teeming and ever-working age it argues much self-reliance to republish a series of essays like the present at a distance of forty years from the time of their first appearance! But these papers consist so largely of direct experiments, that no risk is incurred to the great fame of the author by submitting to criticism at a date so advanced. Deductions and conclusions may alter; but in the case of experiments carefully performed and faithfully narrated, the value remains the same throughout all time. In our biography of this distinguished surgeon we mentioned that much of his early success was owing to the rapid fame he acquired throughout Europe from the publication of these papers in the *Philosophical Transactions*, and the reception of a Copley medal from the Royal Society. Tracing results onward, we may refer to the same source the immense success which attended his presidency of the Medico-Chirurgical Society, where he spoke frequently, the great merit of his observations being, that he referred all practical and pathological matters to physiological standards. To the physiological habit of mind it is also owing that in consultation he shines greatly by his illustrations of both disease and treatment by physiological axioms. One other important point Sir Benjamin Brodie may fairly claim. It is upon the two last papers of this series—on the Effects of the Vegetable and Mineral Poisons on the System—that the modern science of toxicology rests. The labours of Orfila, Christison, and Taylor are but the development of the principle contained in these papers.

It is well known that the experiments of Sir Benjamin Brodie on the influence of the nervous system on the generation of animal heat, went to show that the brain and nerves have, independently of their action upon the respiratory process, the power of increasing or diminishing the temperature of the body. This was the deduction from his first essay on the subject; and the second series of experiments, made with every care to avoid source of fallacy, confirmed the facts and inferences of the first. La Gallois subsequently instituted a series of experiments, the results of which were different in detail, though not in principle, to those of the English physiologists;

but as Sir Benjamin Brodie states in the Notes, the results are not more discrepant than the experiments. The one series were performed on young animals, destroyed by vivisection and loss of blood; the other upon smaller animals, destroyed by a narcotic, without losing a drop of blood. We cannot wonder that the results of the two series of experiments were not precisely similar. The following is a summary of the additional facts and reasonings put forward in the "Notes," to show that the conclusions of Sir Benjamin Brodie were correct:—

1. All mammiferous animals have nearly the same temperature, the difference being not more than one or two degrees of Fahrenheit, while there is probably a great difference in the relative quantity of oxygen which they consume.

2. Le Gallois found that if rabbits were tied on their backs, though they might consume more oxygen than in the natural position, and though they struggled violently, their temperature fell. Sir Benjamin Brodie very accurately contrasts this with the increase of heat consequent upon laborious exertion and increased respiration in walking up hill, and he points out that the presence of alarm and fear is the reason why the restrained and struggling animal loses its heat. Le Gallois erroneously referred it to the increased muscular efforts.

3. In some experiments of Messrs. Allen and Pepys, it was found that in animals made to breathe pure oxygen, a larger quantity of carbonic acid was generated than natural, but it was not observed that any increase of temperature took place. Mr. Broughton made experiments, at the suggestion of Sir Benjamin Brodie, and "it was found that the temperature of animals which breathed pure oxygen not only did not rise above the natural standard, but actually fell considerably below it."

4. Though in certain lesions of the nervous system the temperature falls, there are others in which its elevation takes place. In a case observed by Sir Benjamin Brodie and Mr. Cæsar Hawkins, in St. George's Hospital, in 1821, severe injury of the cervical spinal marrow occurred. The abdominal and costal muscles were paralyzed, respiration being performed solely by the diaphragm. The patient lived twenty-two hours, and for a considerable time before his death breathed very slowly, the pulse being weak, and the countenance livid. "At last there were not more than five or six inspirations in a minute; yet a thermometer placed on the inside of the thigh rose to 111°, and the temperature was found to be the same after death." A series of cases is quoted from John Hunter, in one of which the temperature varied greatly in an apoplectic patient, without any variation in the pulse or respiration; in another, of concussion of the brain, the temperature rose, while the respirations diminished by one-half; in a third case, a boy was attacked with violent aphnœa, so that he seemed dying for want of breath; at last there were two and a half, or less, inspirations in a minute; yet, in the graphic language of John Hunter, "he had a fair warmth on the skin all over the body, although in a room without a fire, not covered with more clothes than common in the month of February, with snow falling at noon."

In addition to these reasonings, we may revert to the interesting observations of Mr. Barlow on the variation of temperature after death, particularly in rapid death from cholera or fever. It is found, in such cases, that for a considerable time after death the animal temperature may be retained, and that it even rises after dissolution.

Facts of this kind have induced Sir Benjamin Brodie to believe that heat may be generated by the nervous system, apart from mere chemical change. He concludes a lucid chain of reasoning, by observing that "there seems to be no reason, *à priori*, why the evolution of heat should not be one of the results of the operations of the nervous power, as it is of electricity."

The essays on the action of poisons preserve their value to the present time. They are interesting, as, on the one hand, carrying forward, by direct experiment, the investigations of the illustrious, speculative Bichat, on the order of dying observed in the heart, lungs, and brain respectively; and, on the other, as forming a starting-point to the researches of modern toxicologists. From one of the additional notes to the volume before us, we quote a specimen of the terse style and close reasoning preserved throughout.

> "Since these experiments were published, I have discovered another effect of the woorara, which illustrates in a striking manner the powerful influence which it exercises over the nervous system, affecting the nerves of motion not less than it does those of sensation. It is well known, that if the spinal cord be divided transversely, although the parts below the division are deprived of sensibility, nevertheless powerful contractions of the muscles are produced by the mechanical destruction of that portion of the spinal cord from which their nerves are derived. But if an animal be rendered insensible by the woorara, and the circulation be then maintained by artificial respiration, the same effect is not produced by the same injury, the muscles being as wholly unaffected as they would have been in the dead animal.
>
> It has been shown by the Abbé Fontana, that the poison of the viper, virulent as its effects are when applied to a wounded surface, may be taken into the stomach with impunity. A similar observation respecting the woorara has lately been made by M. Bernard and M. Pelouze. The same thing occurs in the case of some animals as to opium. I injected a strong watery solution of opium into the stomach of a rabbit, but no poisonous effect was produced; although a similar solution injected into the cellular membrane occasions stupefaction and death. I presume that the opium is digested by the stomach of the rabbit, although it is not so by that of a carnivorous animal.
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> "Some poisoned arrows from the Andaman Islands, with which I was furnished by the late Mr. Wilkins, were found to act precisely in the same manner as the woorara; and I conclude that all the more concentrated and more powerful narcotic poisons have a like operation, and destroy life by paralysing the muscles of respiration, without immediately affecting the action of the heart. But it is otherwise when, either from the more feeble action of the poison, or from it

being more diluted, or more gradually administered, the period of death is protracted. In the case of a patient, who survived the being poisoned by the tincture of opium for more than twenty-four hours, the whole of the vital powers seemed gradually to become exhausted; and from the failure of the pulse, it appeared that the contractions of the heart must have ceased nearly at the same time with those of the muscles of respiration.

"The phenomena of death from drowning, strangulation, or confinement in an atmosphere in which there is too large a proportion of carbonic acid, are very similar to those produced by a narcotic poison. The heart continues to act after the animal is apparently dead, and he may be restored to life, if artificial respiration be had recourse to before the circulation has ceased. It is worthy of notice, that under these circumstances the animal does not recover his sensibility, nor his power of locomotion, until some time after he has begun to breathe spontaneously; and hence we may conclude, that the transmission of dark-coloured blood to the brain has not merely a negative, but a positive effect, in fact, operating on it in the same way as a narcotic poison. In some instances the affection of the brain thus produced continues so long that ultimate recovery does not take place; the animal (if I may be allowed the expression) dying a second time, in consequence of the muscles of respiration again ceasing to perform their office. These observations are applicable to the human subject, as well as to the inferior animals."

The practical bearing of these remarks must be obvious to the reader. We conclude by thanking Sir Benjamin Brodie for this contribution to physiological research. None have appreciated more completely than himself, the ultimate dependence of surgery upon physiological anatomy.

The Medical Manual for Apothecaries' Hall and other Medical Boards. By John Steggall, M.D. Eleventh edition. 8vo, pp. 143. London.

We are not usually friendly to "Manuals" for students, as they are calculated to give only a superficial knowledge of the subject of which they treat. Dr. Steggall's work is a very useful compilation, and as an assistant to the memory is undoubtedly very valuable. The clear and concise manner in which the various subjects are treated appears to have been appreciated by those for whom it was compiled, for ten editions previous to the present one have been disposed of. Whilst we advise the student to follow out, in the dissecting-room and at the bed-side, his legitimate course of study, we can recommend Dr. Steggall's Manual as an useful and correct assistant to him on the subjects of which it treats.

Pathology of the Human Eye. By John Dalrymple, F.R.S. Fasc. XIV. London.

This is the last portion of this splendid work, which the author just lived to complete. It will remain a lasting monument of his genius; and whether in relation to the practical value of its contents, or the beauty of its illustrations, may be justly regarded as a credit to our profession. The estimation in which it is held by foreign *savans* proves that its value is appreciated universally.

The Stomach and its Difficulties. By Sir James Eyre, M.D., 8vo., pp. 152.

This unpretending little volume is not intended to be a complete treatise on Stomach Complaints, but is rather a gossiping and friendly guide to those who suffer from what Dr. James Johnson called the "Protean malady." If there is nothing new in Sir James Eyre's book but his strong recommendation of the oxide of silver, none will deny that it is amusing, and abounding in original anecdotes. What are called popular works are not usually to be recommended; but "The Stomach and its Difficulties" deserves to be extensively read. The rules laid down in regard to regimen and diet are judicious, and evidently the result of the practical experience of the author.

Foreign Department.

New Mode of Treating Varicose Aneurism, by M. Malgaigne.

M. Malgaigne advocates, in the *Revue Medico-Chirurgicale* of March, 1852, a method of treating varicose aneurism which is detailed in the following case. A man forty-two years of age had been affected for several months with varicose aneurism at the bend of the elbow, and was subjected by M. Malgaigne to the following operation:—An incision, about one inch in length, was made below, and quite close to the tumour, and the artery tied after a very careful and slow dissection, the patient being insensible with chloroform. The vessel was then tied in the same manner above the tumour, and the pulsations ceased immediately both in the tumour and the radial and ulnar arteries. The lips of the two wounds were respectively brought together, and the arm, bent almost at right angles, put upon a splint, the limb being half-pronated, and resting on a high pillow. As the arm was rather cold it was wrapped in hot cloths; no untoward symptom occurred, and the wounds healed by second intention. On the 24th day the cure was complete the tumour having quite disappeared. M. Malgaigne states that this operation offers much less difficulty than searching for the two ends of the artery in the aneurismal sac. As to Anel's method of tying the main trunk, it is altogether to be discarded. M. Malgaigne cannot say whether this method will answer in other cases, but his success in this instance induces him to think that the two incisions will be extremely useful in cases where no counter indication to this mode of operating lies in the way.

A West Indian Remedy for Tænia Solium.

At one of the late meetings of the Medical Society of Bordeaux, M. Brunet communicated to the Society several cases of tape-worm, where he had succeeded in causing the expulsion of the parasite by means of a paste made of pumpkin seeds, stating that he had been told of the remedy by the captain of a ship. Since that period an article published in the *Journal Universel* of 1820, was discovered, where M. Mongeny, a physician of the island of Cuba, says:—"I used to give to patients affected with tænia three ounces of a paste made with fresh pumpkin seeds, and afterwards six ounces of honey, in three doses; the first an hour after the ingestion of the paste, and the others at the same intervals. Six or seven hours afterwards the tænia was generally expelled, and this remedy has succeeded in cases which had resisted all the means generally employed. The worm is rejected, not in fragments, but twisted upon himself; and where two parasites had existed, they were wholly and simultaneously voided."

Miscellaneous Correspondence.

ON THE TRANSMISSION OF LIQUID VACCINE LYMPH.

To the Editor of The Lancet.

Sir,—Allow me to submit to you a little contrivance of mine, for the easy transmission by post of vaccine lymph in a liquid state. As at the present time, the disease for which I believe vaccination will eventually prove to be the only justifiable prophylactic measure, is rife in many parts of town and country, and as the subject has lately occupied much of the attention of many of the most able and practical men, I venture to hope, having already received the approbation of several, that my small contribution may prove of practical value in itself, and assist in terminating a disputed point, which, with all due deference, I beg to be allowed to say, in my opinion, need never have been mooted: but, as I entertain a firm belief that all events, however untoward their present aspect, tend ultimately to a beneficial result, so, though this may not now be apparent, I doubt not of its efficiency towards the great end of human happiness.

I enclose you two little tubes made of gutta percha, with stoppers of the same material. into which are inserted blades, one of glass, the other of ivory. By collecting the fresh lymph on either of these blades, and replacing it in the tube, it is confined in an air-tight vessel, very light, (weighing only from twenty to thirty grains, being about two inches long, and a quarter of an inch internal diameter,) quite infractile, capable of retaining the lymph in a liquid and useful condition for at least three weeks or a month.

I will not here enter into the discussion of the question as to how long lymph may be kept in a liquid state without undergoing decomposition, out of respect for your space, (should you think this communication worthy of admission,) but will say, that I have used it successfully after having been stored in these tubes for about *four* weeks. When intended for transmission to great distances, to ensure that they are hermetically sealed, the stopper and mouth of the tube may be warmed in the flame of a taper, and united while hot; they may afterwards be separated by passing a sharp or warm knife a little below the mouth of the tube: in ordinary cases, if the stopper becomes fixed, it may generally be easily removed by grasping it with the corner of a handkerchief, or with a small pair of flat pliers, using in each case a slight rotatory motion. I am about to try some steel points, instead of glass or ivory, so as to render but one instrument necessary.

They may be procured, as made according to my directions, of Mr. Pardy, 10, Brompton-road, Knightsbridge, at from 3*s.* to 3*s.* 6*d.* per 100, with glass blades. A larger size, weighing about two drachms, for the purpose of transmitting a larger quantity by post to the locality of any epidemic outbreak of small-pox, may also be procured.—I beg to remain, yours faithfully, W. M. F. Chatterley, M.R.C.S.E.

, Mr. Chatterley has obligingly forwarded to us two of the little stoppered tubes such as he has described, and they appear to have been ingeniously designed; but probably he is not aware that, a few years since, vaccine lymph was supplied from the Vaccination Hospital, Battle-bridge, in half-drachm or drachm stoppered bottles, the stopper forming within the bottle a sharp-pointed cone, on which a drop of the lymph was deposited. Two children in the parish of Clerkenwell were vaccinated from lymph thus supplied. It was taken from a remarkably fine, healthy, child, on the eighth day after vaccination. The two children were of the respective ages of six and two months The arms of both children became highly inflamed, the wound on the arm of the eldest child sloughed, and the infant died on the fourteenth day after it was vaccinated. The other child survived; but abscesses formed in the axillæ, the elbow and wrist joints, and other parts of its body. Both children having been so severely affected, and one having died, an inquest was held on the body before Mr. Wakley, and the case was minutely and thoroughly investigated. Mr. Marson, of the Vaccination Hospital, was present at the inquest, and the lymph that remained attached to the point of the cone was submitted to the microscopic examination by Mr. Wilson, who proved, at the inquest, that it had become completely decomposed, and was quite unfit for use. It should be stated that the children thus affected by the lymph in question were vaccinated between thirty and forty hours after it had been taken from the arm of the healthy infant. At the conclusion of the inquiry, Mr. Marson stated that the practice of sending out lymph in a liquid state, and in such a manner as to admit of its decomposition, would be immediately and henceforward discontinued at the Vaccination Hospital.—Ed. L.

Since the foregoing was in print, we have received a second communication from Mr. Chatterley on the same subject.

To the Editor of The Lancet.

Sir,—Since I wrote to you there has been a discussion at the Epidemiological Society, in which I took a part, and a report of which you will most likely receive from the Secretary. I have now to request that, if you intend to publish the communication I have sent to you, you will add the following, either as a paragraph or a postscript, as you may deem most appropriate.

After a very mature consideration of the arguments with respect to the decomposition of vaccine lymph, chiefly induced by the observations of Mr. Marson, at the last meeting of the Epidemiological Society, I venture to suggest a method which, in conjunction with the tubes, I have had the honour to submit to the Epidemiological Society and yourself, will, as far as chemical principles are concerned, necessarily prevent the possibility of decomposition.

It is this—simply to drop one or two minims of ordinary coal-tar naphtha into the tube previously to enclosing finally the liquid lymph, so that, the tube being filled with the vapour of this hydro-carbon, no oxygen shall be present, and no decomposition can take place. At present, of course, there is no practical proof of this; but it is my intention to put it immediately to the test, as far as my opportunities will allow; and I venture, speaking theoretically, to say, that I have no doubt that the result will be in accordance with the views I have felt bound to suggest. In haste, yours faithfully,

W. M. F. Chatterley, M.R.C.S.E.

PUNCTURE OF THE BLADDER THROUGH THE SYMPHYSIS PUBIS.

To the Editor of The Lancet.

Sir,—The question as to the best method of puncturing the bladder for retention of urine has recently attracted much attention, having been ably brought before his class and the profession, in the excellent clinical lecture delivered by Mr. Simon, and mooted with some vivacity at the Medico-Chirurgical Society, in the discussion that followed the reading of Mr. Cock's paper. By neither of these gentlemen, however, nor by any of the Fellows of the Society who took part in the discussion, was allusion made to an operation for the relief of retention of urine, suggested and performed some years ago, in India, by Dr. Brander, surgeon in the Company's service; a memoir on which was communicated by him to the *Quarterly Journal, or Transactions, of the Medical and Physical Society of Calcutta*, I believe, for 1838.

Inferring from this silence on the subject that none of the parties to the discussion had met with Dr. Brander's paper, or were acquainted with his operation, I make no apology for sending you the following brief account of it, drawn up from memory, as I have been unable to find the volume in which it appeared, either at the library of the College of Surgeons, or in that of the Medico-Chirurgical Society.

Commencing his memoir by a critical review of the three operations by which the bladder is ordinarily reached, and setting forth the difficulties, inconveniences, and dangers, attending them all, Dr. Brander states, that it occurred to him, from a consideration of the anatomical relations of the viscus, that there was yet one situation, which had hitherto been overlooked, where the bladder, in its normal condition, approached nearer to the external surface of the body than at any other point, and where, moreover, the simplicity of its relations promised not only to facilitate its puncture, but, at the same time, very materially to diminish the risk and inconveniences of the operation. This situation is the symphysis pubis; and Dr. Brander at once proceeded to verify his impression of its superior eligibility by introducing a trocar into the bladder, at this point, in the dead body, and afterwards dissecting the parts carefully. The satisfactory result of his experiments induced him, at a subsequent period, to operate on the living subject, and with complete success, *quoad* the operation; the death of the patient, in a few weeks, from another malady, affording him the opportunity of a post-mortem examination, which demonstrated that no injury had been caused by the puncture, either to the organ itself or to any other part, the small wound being so perfectly healed that its cicatrix could scarcely be detected.

The particulars of a second successful case are given in the appendix to the same volume; and Dr. Brander informed me, when in England on furlough last year, that two more operations of the kind had since been performed in India. He employs a flattened trocar, and has never experienced the slightest difficulty in plunging it directly into the bladder, through the centre of the fibro-cartilage, in the dead or living subject. In his first operation, he divided the soft parts over the symphysis before introducing the trocar; in his second, he dispensed with this preliminary.

In the absence of Dr. Brander's data, I lay before your readers the following details of two trials of the operation which I have made upon the dead body. After injecting half a pint of water, I attempted, in the first instance, to pass Ponteau's curved trocar, used for puncture of the bladder from the rectum, through the symphysis; but it was too large to enter. I then tried a small hydrocele trocar, which glided readily between the bones, and drew off some water. On opening the abdomen, I found that the canula, which was little more than two inches in length, had barely penetrated the bladder, but an incision through a considerable layer of fat over the os pubis allowed me to push it nearly an inch farther. The canula had entered the bladder midway between the vesical orifice of the urethra below and the reflected peritonæum above, a full inch from the latter, even in the undistended state of the organ. The passage between the bones lay exactly in the centre of the symphysis, where it recedes downwards and backwards at the root of the penis. The direction of the instrument was at right angles with the symphysis, or at an angle of forty-five degrees with the axis of the body prolonged between the thighs. At no other point would the trocar enter, nor could I give it any other direction.

In my second experiment I used a flattened, curved trocar, rather more than four inches in length, with a lancet point, the canula of which, in its narrow diameter, was not larger than a No. 3 catheter. With my fore-finger resting firmly on the side of the canula, about two inches from the point, as a guard, I experienced no difficulty in introducing thus much of the instrument into the bladder at the spot indicated, and drew off its contents in a full stream. On laying open the bladder, an inch of the canula projected into its cavity, this subject being much emaciated. I then pressed it forward until the entire four inches had been introduced; but even now its extremity did not come in contact with the opposite mucous lining, as the curve of the canula gave it a more downward course than that taken by the straight hydrocele trocar. As nearly as I could judge, it pointed towards the junction of the sacrum with the os coccygis.

The facility and immunity from danger of this operation will scarcely, I think, be disputed. The peritonæum cannot be wounded, even should the bladder not have risen above the pubis. There are no vessels nor other important parts to be avoided, and extravasation is far less to be apprehended in this situation than in any other. On the last point I may mention, that, having removed the bladder in order to examine more minutely the seat of puncture, I could no longer discover the orifice; and although the viscus was then filled with water, and considerable pressure made upon it, not one drop escaped. It would thus appear that should the canula be withdrawn immediately after evacuation by puncture, or its point accidentally slip out of the bladder, there would be little or no risk of effusion; the walls of the bladder gliding upon each other to such an extent during its contraction as to produce a valvular closure of the opening. Ossific union of the two bones is the only obstacle which seems likely in any case to impede the passage of the instrument; but this occurs far too seldom to be brought forward as a valid objection to the operation.

Admitting that retention of urine may be relieved in the vast majority of instances without tapping the bladder, what, I ask, are we to do in those extreme cases where the prospect of extravasation is imminent, and yet, in Mr. Simon's words, "no instrument can find its way into the bladder, nor one drop of urine out of it?" Two very opposite courses were severally advocated in the discussion of Mr. Cock's paper, at the Medico-Chirurgical Society, by those gentlemen who impugned the necessity of resorting to puncture. Mr. Arnott was for skilfully forcing the stricture; nearly all the other speakers were in favour of baths, opium, and croton-oil, and perseverance in *la médecine expectante*.

Now, it is most true that the point of a catheter may be, and often is, very successfully driven into the bladder, through every obstacle, by a bold and dexterous manipulator. But I have seen such mischief done—and that at the hands of surgeons of no mean distinction—by forcing a stricture, closed by inflammation or congestion, rather than have recourse to any of the current modes of puncture for the evacuation of an over-distended bladder, all of them more or less formidable, that I cannot but regard hopefully Dr. Brander's comparatively slight operation, as an alternative infinitely preferable when some decided step for relief can no longer be delayed.

And, on the other hand, is there no small risk that forbearance may sometimes be carried too far? The chances of ulceration of the urethra behind the stricture are in direct proportion to the violence and duration of inflammatory action. But should it turn out that we possess a tolerably safe and certain means of emptying the bladder, which will enable us, at an earlier period than would perhaps be justifiable by any of the old operations, not only to remove the most urgent and dangerous symptom, but to take off the strain upon the inflamed part, which, as long as it lasts, is calculated to neutralize both antiphlogistic and sedative measures, all danger of ulceration may thus be avoided, and time will be afforded us to push the treatment of the stricture to a successful issue.

Where the urethra has actually given way, or even where a *suspicion* of ulceration exists, few surgeons, I think, would hesitate to adopt the modified perinæal operation described and practised by Mr. Simon, which is, nevertheless, still a somewhat formidable affair. Puncture through the symphysis pubis, however, appears to me to bid fair, not merely to displace the supra-pubic operation "in those very rare cases of prostatic tumour" to which Mr. Simon would seem to restrict it, but, by obviating the danger of rupture of the urethra as a consequence of retention of urine, to supersede Mr. Simon's and all other methods of puncturing the bladder for its relief.

In the hope that this imperfect notice of my friend Dr. Brander's views may elicit some further evidence of their feasibility, or at any rate, that it may catch his eye in the other hemisphere, and decide him to republish them in extenso, which I know he contemplated doing at the time he returned to India,

I am, Sir, yours most obediently,
HENRY T. CHAPMAN, F.R.C.S.,
Late Senior Surgeon to the St. George's and St. James's Dispensary

WHAT IS METASTASIS?

To the Editor of THE LANCET.

SIR,—In a paper by Mr. Pilcher in your last issue there is quoted a case of purulent infection of the blood in a boy who was under my care at St. Mary's Hospital. The merits of the paper are such as to easily afford being found fault with in one particular; and therefore I take this opportunity of noticing what the author will, I believe, be ready to acknowledge an important omission. I think that wherever a case is related, either the initials of the patient, or the name of the medical man who attended, or the number in the hospital register, should be given. If none of these three means of identification are adopted, there is great danger of the same case being alluded to a second and perhaps a third time by different parties, in different words, and in different stages of progress, and then an unconscious systematic statistician puts them down by a pardonable mistake as two or more separate instances of the phenomenon. An example of this appeared a little time ago in your paper, where was quoted from sundry old authors the case of a hairy woman, that, being mentioned by several writers, was supposed to be two or three hairy women.

The adoption of the rule I advocate is the more important at St. Mary's, because a consecutive register of all cases is kept, which is open, not only to the medical officers, but to all governors by right, and practically by concession to all medical practitioners. This plan, intended to sow broadcast the germs of correct information, causes examples of disease to be cited in various quarters without the knowledge of the medical attendant, as in the present instance. He, again, may give a clinical lecture upon it, and a pathologist exhibit the remains, without correspondence, and no one may be able to say "Ecce iterum Crispinus!" when all the reports appear in your valuable journal.

The application of the proposed rule to private practice is not always so easy; but in public institutions it may be made imperative without inconvenience, and I think journals have the power to enforce it.

I am, Sir, your obedient servant,
THOS. KING CHAMBERS.

WHAT IS THE STRUCTURE OF THE SKIN?

To the Editor of THE LANCET.

SIR,—Being engaged in some microscopical observations on the mucous membranes, I was induced to consult Dr. Carpenter's "Manual of Physiology," 1851. So obscure was the information, as I shall show, and spread over twenty-six pages on the subject of the Skin and Mucous Membrane, that I consulted the "Dublin Dissector," (1847, fifth and last edition.) and there the obscurity of meaning was ten times worse! I have read the following to a gentleman about to be examined, and he confesses himself in a perfect morass. I think this arises from authors not taking care that they are comprehensible to others as well as to themselves.

Dr. Carpenter assigns to the

	" *Skin.*	*Mucous Membrane.*
Art. 224.	*a.* Epidermis.	*a.* Epithelium.
206.	β. Primary membrane.	β. Primary membrane.
204.	γ. Areolar tissue.	γ. Areolar tissue.

206. The primary membrane lies beneath the epidermis and epithelium. It is structureless—a thin film of coagulated gelatine.
206. The primary membrane forms the outer layer of the true skin.
198. Beneath the primary membrane is a layer of condensed areolar tissue."

This is confusing enough; for Dr. C. makes three component cutaneous layers; then he divides the skin into two, the primary membrane being the "outer layer," and I suppose the "condensed areolar tissue" the inner layer. Why is not the "structureless thin film," the primary membrane, entitled to a distinct position if it has no detectable organic structure, and its subjacent tissue is full of blood-vessels and nerves? Why describe it as "*a membrane* under the epithelium, &c.," if it is only an outer layer?

The "Dublin Dissector" makes two layers (independent of the areolar tissue) to the skin and mucous membrane, at page 587, vol. ii., "Each has an external lamina named cuticle, epidermis, or epithelium; the other deeper, named cutis vera, dermis, or chorion; beneath the latter is added areolar tissue." Dr. Carpenter makes the same; but where is Dr. Carpenter's other inner layer of the skin and mucous membrane? Split the "Dublin Dissector's" cutis vera, and you have two areolar tissues; for the "Dublin Dissector" has a *whole epidermis*, a *whole cutis vera*, and "beneath the latter is added *areolar tissue*. But the "Dublin Dissector" slips out of his own skin; he says, page 592: "The *cutis vera* is composed essentially of areolar tissue, full of blood-vessels, &c." Again, same page: "In the dermis the areolar tissue becomes condensed, and presents beneath the epidermis numerous papillæ. This surface is often spoken of as a *distinct lamina* of the cutis, under the name of papillary membrane. It is not to be considered as a *separate structure*." This papillary surface and Dr. Carpenter's primary or basement membrane are clearly identical; but the "Dublin Dissector" says it is *not a separate structure*, it is *not a thin film*, *structureless*, but condensed areolar tissue; and at page 593 says: "The superficial or papillary lamina of the cutis is the seat of a vascular capillary plexus."

Now, Sir, what does all this mean?

"Meade, in his "Manual," (1846,) page 287, says: "The basement membrane is the boundary between the cutis vera and cuticle."

Worse off than ever!

Dr. Wythes ("Microscopist," 1852,) gives the skin a cuticle and cutis vera, and to the mucous membrane an epithelium and basement membrane, and says no more.

This, Sir, is very perplexing, and much needs your aid; for our two best authorities fail in informing us what our skins are composed of!

I am, Sir, your very obedient servant,
C. B. Garrett, Surgeon.

Medical Facts, News, Items, &c.

Medical Certificates and Evidence.—Rachel Evans was brought before Alderman Farebrother, at Guildhall, charged with cutting and wounding Sarah Cook, with intent to do her some serious bodily harm. It appeared that the complainant and the prisoner were quarrelling, when the latter struck the former on the forehead with some sharp instrument, which she thought was a knife, and inflicted a wound over the left eye. She was taken to the hospital, where her head was dressed and strapped up. A certificate from the house-surgeon of St. Bartholomew's Hospital was here put in, stating that "Sarah Cook was admitted, suffering from a lacerated scalp wound." Alderman Farebrother: Take this certificate back to the surgeon, and tell him he must attend himself, or write something that is intelligible. We know as well as he does that the woman is suffering from "a lacerated wound in the scalp." Take a summons, officer, and if the surgeon refuses to come, bring him with you. In a few minutes the surgeon arrived. Alderman Farebrother (to the surgeon): We could save you a deal of trouble, by dispensing with your attendance, if you would only send us an intelligible certificate. Surgeon: I thought it unnecessary to state anything else on the certificate, knowing you could judge of the nature of the wound from the appearance of it. Alderman Farebrother: That may be very true; but the information we require for our satisfaction is, as to the kind of wound, what weapon it was probably inflicted with, and if it was likely to be attended with any dangerous results. Surgeon: It shall be done so for the future, sir. With regard to the wound received by the complainant, I should say it was not inflicted with a knife or any sharp instrument. Alderman Farebrother: Then it is your opinion that the wound might have been caused by a water-pail, as stated by the prisoner? Surgeon: Certainly, sir. Alderman Farebrother: I regret being obliged to trouble you, but you have brought it on yourself, and I hope I may not have to send for you again. The prisoner was then fined 10s., and in default of payment was committed to Bridewell for fourteen days.

Sir Gilbert Blane's Gold Medal.—The award of the Medical Director-General of H.M. navy, and the Presidents of the Colleges of Physicians and Surgeons, London, of the above medal, has been conferred on Dr. T. R. H. Thomson, surgeon R.N., for his "Journal of Medical and Surgical Practice in H.M.S."

Resignation of Dr. Conolly.—Every friend of humanity will regret to learn that Dr. Conolly has resigned his post of physician to the Hanwell Lunatic Asylum.

Obituary.—Died, Feb. 1, 1852, at Melbourne, Dr. John Kidd, R.N., F.R.C.S., and uncle of Abraham Kidd, M.D., of Ballymena. The deceased was cut off in the forty-eighth year of his age, and was much respected and liked by his friends and brother officers. He received his medical education at Dublin and Edinburgh, and entered as an assistant-surgeon in the royal navy at an early age. He was soon promoted to the rank of surgeon, and had the honor of serving his country above twenty years. He was distinguished as a cool and steady operator, prompt in the treatment of disease, and skilful in his diagnosis. He saw much service, and his name is honorably mentioned in an Auckland paper, dated 17th January, 1846, by Colonel H. Despard, to his Excellency Governor Grey. He was then surgeon on board H.M.S. *Castor*. On this occasion (an engagement with the rebel chiefs Kawiti and Heke) he and Dr. Pine were the senior medical officers among both naval and military, when a large number of officers and men were either killed or wounded. Dr. R. B. Dennison, the only son of the celebrated Dr. Dennison, of Broad-street Buildings, London, was born on the 7th of September, 1783. He received his medical education at the London Hospital. He graduated in Edinburgh in 1806, and was elected a member of the Royal College of Physicians in 1813. He was many years physician to the Royal Maternity Lying-in Charity; also to the Queen Charlotte's Lying-in Hospital; and on his retiring to Margate in 1832, he was appointed physician to the Royal Sea Bathing Infirmary. He died on the 17th of June, 1852, in his sixty-ninth year.—The medical profession has just lost one of its brightest ornaments in France. Professor Recamier died suddenly, of pulmonary apoplexy, in his seventy-eighth year, and up to the last moment of his existence he was actively engaged in the laborious duties of a very large practice. Long would it take his biographer to enumerate the many improvements suggested by his energetic mind in the various departments of medicine; we shall therefore merely remind our readers that he originated all the improved modern methods of treating surgical affections of the womb. No pomp nor display of ostentation characterized his life, and his obsequies would have been equally simple but for the immense concourse of poor and rich anxious to show the last public token of respect to one in whose long career charity and science had ever walked hand in hand. A noble example to us all!

Amongst this concourse were many generations of medical men; and many of them had been Recamier's pupils, and some few may have heard the clinical lectures he gave at the Hotel Dieu, when Bichat was his colleague, in the days of the Republic *one and indivisible.* Round his remains were gathered deputations from the Faculty and the Academy of Medicine; eloquent orations were pronounced over his tomb by Trousseau, Gibert, and Maisonneuve; and though science could do no otherwise than claim the right of placing an immortal laurel on his devoted head, it could not dispel the heartfelt emotion and deep anguish which wrung many a manly brow, assembled for the solemn task of paying the last honors to one so virtuous, kind-hearted, and so universally well-beloved.

SURGERY IN THE EAST.—From the annual report of the Medical College of Bengal, for the session 1851–52, it appears that, during that period, Professor O'Shaughnessy has performed 163 operations, exclusive of 120 minor operations, making a total of 283, with only 9 fatal cases. Mr. O'Shaughnessy, who was formerly connected with this journal, is now a member of the Council of the College, and also Professor of Surgery. This gentleman has just received a donation of £2000 from the government of India, in acknowledgment of his services in the construction of the electric telegraph, having previously received similar acknowledgments, but of smaller amounts, from the Calcutta Chamber of Commerce and the Trade Association. From a return of minor surgical operations, performed at the out-door Dispensary of the Medical College, during the past year, it appears that 2188 have been treated successfully, including 495 cases of tapping for hydrocele, which have been returned as *cured.* We find, from a statement of the number of bodies taken to the College for dissection and operation, during the session, that they amounted to 722, of which number 501 had been dissected, 92 had been used for opperations, 38 for lectures and 23 for examinations; the remaining 68 could not be used, owing to decomposition.

GENERAL ELECTION.—FALMOUTH.—We are happy to observe that Mr. P. Edward Barnes, of Lincoln's-inn, is a candidate for Falmouth, in the Liberal interest. Previously to adopting the profession of the Bar, Mr. Barnes was engaged in the study of medicine at University College. By connexion, not less than by old associations, he still entertains strong sympathies with the medical profession. He is a graduate in Arts of the University of London, and was one of the earliest members of the Graduates' Committee, formed for the purpose of effecting that reform in the constitution of the University which now appears to be approaching so successful an issue.

OBITUARY.—Died. on Monday, June 28th, 1852, at Fitzwilliam-street, Huddersfield, Dr. John Taylor, aged forty-one years, Physician to the Huddersfield Infirmary, formerly Physician to the North-London Hospital, Professor of Clinical Medicine, University College, London, Fellow of the Royal College of Physicians, London. He was an eminent and inestimable man. Huddersfield and the West Riding of Yorkshire will deeply feel and regret his loss. He has been very highly and deservedly respected. In the midst of his benevolent professional career, and in the prime of life, an inscrutable Providence has snatched him away. His end was calm, happy, and peaceful. On Tuesday, the 29th of June, a post-mortem examination of the body took place, in the presence of the following medical gentlemen: T. P. Teale, of Leeds, Samuel Booth, William J. Clarke, and Thomas A. Bottomley:—Liver enlarged, and studded throughout its whole extent with masses of encephaloid matter, varying in size from that of a pea to a pullet's egg. Left kidney about the size of two fists, extremely hard, and infiltrated throughout with encephaloid (?) matter (opaque white solid matter.) Right kidney healthy. Great enlargement of the lymphatic glands in front of the spine and at the upper part of the abdomen. Lungs studded throughout with small, opaque, hard, white masses, from the size of a pea to that of an almond. Heart: Left ventricle slightly hypertrophied, mitral valve white, thick, and opaque, and its chordæ tendineæ white, thick, opaque, and shortened; aortic valves thickened and opaque; right ventricle thin and flaccid. Portions of the liver, lung, kidney, and lymphatic glands examined under the microscope, all showing the same encephaloid deposit—nucleated cells with nucleoli, and interspersed with melanotic matter.

COLLEGE OF PHYSICIANS.—HARVEIAN ORATION.—The annual oration commemorative of the eminent and illustrious Dr. William Harvey, was delivered on Saturday, June 26th, in the Library of the Royal College of Physicians, Pall Mall East, in the presence of the president, censors, and a numerous body of the fellows and members of the College. According to immemorial usage, the oration was composed in the Latin language, this year by Dr. Formby, of Liverpool; but owing to the defective state of that gentleman's vision, it was read by Dr. J. A. Wilson, the senior censor. It contained a suitable tribute to the memory of the famous discoverer of the circulation of the blood, and was principally devoted to an examination of his great genius, character, and indefatigable research; and it was only in a few concluding pages of the lecture that the orator deviated from these topics, and offered some brief remarks upon the advantageous administration of chloroform in surgical operations, spasmodic diseases, and labours, and also on the signal benefits he had observed to result from the use of creosote in cases of pulmonary affections.

LECTURES ON INSANITY.—We are gratified to hear that the exertions of Sir Alexander Morison on mental diseases have at length been successful. The East India Company have lately passed a resolution, rendering it imperative on medical students entering their service to attend to the study of mental diseases, and there is no doubt but the other branches of our national service (army and navy) will do the same. In 1823, Sir A. Morison first gave lectures in this country on the subject, which he has continued ever since; and he was the first to introduce lectures on the subject in Bethlem Hospital, under the patronage of the late Lord Shaftesbury, to which of late years the governors have given greater facilities to students.

ROYAL DISPENSARY FOR DISEASES OF THE EAR.—The thirty-fifth annual meeting of this institution was held on Thursday week, at the Dispensary in Dean-street, Soho. The Rev. William Brock was voted to the chair. Mr. Reynard read the report, from which it appeared that during the past year 1029 patients had been received, of whom 335 were cured, 192 were relieved, 502 remained under treatment; out of the whole 1029, in not a single instance had the treatment adopted produced injurious results, even where it had failed to restore hearing. The patients consisted generally of clerks, domestic servants, needlewomen, artisans, distressed foreigners, soldiers, sailors, and police, who have received advice and assistance from the medical officer.

THE LANCET.

Journal of Medical, Surgical, and Chemical Science and Practice, Criticism, Literature and News.

MR. WAKLEY, M.P., EDITOR. J. HENRY BENNET, M.D., J. WAKLEY, JR., SUB-EDITORS.

IN TWO VOLUMES ANNUALLY.

VOL. II. NEW-YORK, SEPTEMBER, 1852. No. 3.

Lectures
ON
APOPLEXY AND EPILEPSY;
AND ON AN
HOSPITAL FOR EPILEPTICS.

Being an Outline of the Croonian Lectures, delivered at the Royal College of Physicians in 1852.

BY MARSHALL HALL, M.D., F.R.S.

(Concluded from July No., p. 12.)

I propose tracheotomy, not as a remedy for apoplexy, or for epilepsy; but for stertor or paralytic Laryngismus and its effects, in the former malady; and as a preventive and security against spasmodic Laryngismus and its effects—viz., Convulsion, and the injury apt to be inflicted on the cerebrum and the medulla oblongata, on the mind and limbs, in the latter dire calamity.

In the apoplexia gravior, with laryngeal stertor, tracheotomy affords the chance for life; in the epilepsia gravior, tracheotomy supersedes the laryngismus, and the Convulsion and its dire effects.

LECTURE III.

ON AN HOSPITAL FOR EPILEPTICS.

203. I HAVE long meditated the institution of an Hospital for the poor afflicted with Epilepsy. I have hitherto been deterred from prosecuting the idea by the reflection that it would be injurious to those liable to seizures of this direst of chronic maladies, to be witness to the frightful scenes presented by their companions in this misfortune. I believe I have, in a great degree, obviated this objection.

204. Inorganic epilepsy occurs, as I have said, in two forms: the first the *epilepsia mitior*, or the slighter epilepsy; the second, the *epilepsia gravior*, or the graver epilepsy.

205. I believe the slighter epilepsy depends on a condition of the muscles of *the Neck*, which I designate *trachelismus*, and by which the flow of blood from the brain and spinal marrow is impeded. This is only to be prevented by strict and persevering attention to avoid its exciting causes, which are, in general terms, the *emotions*, and the *irritations*; the latter being chiefly dental, gastric, enteric, uterine, &c.

206. But the severer epilepsy depends upon another condition,—that of *the Larynx*, termed *laryngismus*. As trachelismus impedes the flow of blood from the brain, so laryngismus impedes the ingress and egress of air to and from the lungs, especially the latter. The larynx is, in fact, more or less closed; and upon this closed larynx violent expiratory *efforts* are made. These events induce, in their turn, still greater impediment to the flow of blood from the brain and from the upper part of the spinal marrow, and, as a further consequence, all the direr forms and effects of this dire disease,—viz., convulsion, convulsive falling, or rather dashing to the ground, &c. &c.

207. Now, the influence of this laryngismus, and all these dire effects, are, I believe, obviated by *Tracheotomy*.

208. The epileptic patient on whom tracheotomy is effectually performed, is preserved from all that is included in the *graver* form of the disease: the patient may *fall*, but he is not thrown down violently, nor does he become affected with deep lividity of the countenance, convulsion, foaming, &c. He no longer presents the *frightful* spectacle to which I have adverted in the first paragraph of this Lecture! The objection to the institution of an hospital for these afflicted persons is therefore removed.

209. Having made these few preliminary remarks, I proceed to state my views in the suggestion that the duty of establishing an Hospital for Epileptics becomes specially imperative upon the humane and the charitable.

210. Epilepsy is indubitably the direst of human maladies. It dashes the afflicted patient with convulsive violence to the ground, and exposes him to the danger of falling—down stairs—into the fire—or water—or under carriage wheels, and to the infliction of terrible wounds, injuries, burns, &c. It incapacitates him for any employment. It may impair his faculties or cripple his limbs. Not unfrequently the attack passes into a fit of mania; occasionally it proves fatal, by inducing a state of apoplexy, or, still more speedily, from its violence, by spinal syncope. The ancients designated it the *Herculean malady!*

211. The epileptic becomes, then, from his peculiar helplessness and danger, the object of our peculiar care. It is his cause which I plead!

212. Happily, besides the care which may be taken of these afflicted persons, much may, as I believe, be done, by care, by regimen, by medicine, and by new modes of treatment, to mitigate, if not to remove, their dire calamity.

213. Each seizure is induced by one or more of a series of exciting causes, some of which, and these the most usual, may be avoided under judicious and watchful management.

214. The *severe* forms of the disease depend on the condition of the respiratory apparatus which I have described, and which may be obviated by a simple operation. By means of this operation we are enabled to avert the violence of the malady. We cannot, by *it*, avoid the cause or causes, or their first effects, the slighter forms of the affection; but we *can* avoid the severer, the graver, the direr consequences of these causes. We can preserve the patient, as I have stated, not from *falling* indeed, but from being dashed to the ground violently and convulsively; we can secure him from *convulsion*, and all its dire effects on the mind and on the limbs, and save him from mania, amentia, or paralysis!

215. Nay, we can, in a certain number of cases, yet unknown, even *cure* the patient; for, by avoiding the severe forms of the disease, we obviate the *susceptibility* to future attacks, induced and left by them. One patient, who used to experience a severe attack twice in every week, has had no attack whatever during twelve months. Another epileptic, from *hereditary* epilepsy, during four and twenty years, having the severest attacks frequently, and falling dangerously on the fender, or into the fire, has, during four months, had the milder attack only.

216. That we may take *care* of those poor patients; that we may change their malady from the direst to a comparatively, or even to a positively, mild one; and, in a certain number of cases, even *cure* it entirely—is certain! Who will not lend a helping hand in so good a work?

217. My project is to bring those afflicted with epilepsy under one roof,—for shelter, for protection, for safety; to place them under a systematic, gentle course of medicine, of diet and regimen, free from stimulus, of exercises free from all effort or fatigue, of occupation free from excitement or emotion; to arrange their bed so that the head may be high; to clothe them, and adopt measures for keeping their feet warm and dry, &c. &c.—for such are found to be important measures in the treatment.

218. Having thus done all that kindness and art can suggest for the solace and cure of our patients, the next point is to ascertain in those whose cases prove fatal, what are the morbid appearances on post-mortem examination. These appearances may not, as is too generally supposed, be the *disease*, or the *cause* of the phenomena; but the *effect*.

219. Let us suppose that we meet with congestion, or ecchymosis, or a clot of blood, or effusion of serum; or even softening; or, in chronic cases, induration. Are these the disease, or the cause of the disease? Possibly not. They are even probably the *effect* of the violent congestion to which the nervous centres may have been subjected during the paroxysms. Without attention to this *living* pathology, even the morbid anatomy may lead to erroneous conclusions.

220. Why should epilepsy, more than apoplexy, be treated *empirically*? What should we say to the proposition to trust the treatment of apoplexy to the sulphate of zinc, the cotyledon umbilicus, &c.? Why should we act less *rationally* in the case of epilepsy?

221. The pathology of apoplexy and the pathology of epilepsy should be equally investigated, and upon this pathology the treatment should be founded. I would especially recommend that, whilst every exciting cause is removed, and the general health carefully maintained, the pilula hydrargyri be given for the removal of organic effects, and the strychnia for the diminution of the susceptibility of the nervous centres, equally left by the epileptic seizures.

222. The real value of particular remedies is also still entirely unknown, notwithstanding the occasional publication of successes.

223. In an *Hospital for Epileptics*, the *truth* in regard to these topics may be ascertained; whilst we give the patients the advantage of every care, of every aid, of every remedy.

224. So much can scarcely be said to be accomplished by any of our other Hospitals.

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225. It is not, indeed, yet known what may be accomplished for the epileptic by an *extreme* and *sustained* attention—

226. 1. *To Diet and Regimen, excluding all Stimulants and Indigestible Substances;*

227. 2. *To the Secretions and Excretions;*

228. 3. *To Security against all Emotion and Excitement;*

229. 4. *To Exercises and Occupations, avoiding all Effort and Fatigue;*

230. 5. *To Clothing, and especially to warmth and dryness of Feet;*

231. 6. *To a raised Posture during Sleep, &c.*—

232. I mean such a *degree* of attention to diet and regimen, to the secretions and excretions, &c., and so sustained, as has never been attempted before!

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233. The great difficulty, in the treatment of epilepsy in private practice, is the impossibility of securing the necessary *degree* of attention to all this regimen. In an Hospital this will be readily accomplished. It must be the great object of the Institution.

234. In this manner, I am persuaded that many more poor patients will recover from epilepsy than rich.

235. How instructive will be a series of statistics on this subject! The real value of regimen;

the real value of remedies; the real value of tracheotomy; the real value of post-mortem appearances—will become known.

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236. The great difficulty, in regard to the *Hospital*, will be that of the selection of cases. Our expectations must be reasonable. Every one knows how little can be expected in the congenital, the hereditary, the inveterate cases—not from the violence of the seizures, which may be averted, but from the organic condition, cause, or effects, of the malady.

237. In such cases the *care* of the afflicted patient must be our chief object. But, in very many others, I am persuaded, as I have stated, that we ought not to despair of *Cure*.

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238. I conclude this outline with the following Sketch :—

1. The Emotions; 2. The Irritations; induce	Spasmodic Trachelismus.	Threatenings of 1. Apoplexy; 2. Epilepsy; or	Congestion of 1. The Cerebrum, 2. The Medulla Oblongata; with	1. Paralytic, or 2. Spasmodic, Laryngismus; and	1. Stertor and augmented Coma, 2. Convulsion, and its Effects;	Superseded by Tracheotomy.

Recapitulation.

239. 1. The cases of apoplexy and epilepsy of inorganic origin have not before been duly discriminated and investigated;

240. 2. Their causes are *the Emotions* and the *Irritations;* the former acting directly, the latter diastaltically—

241. 3. *First*, on the muscles of *the Neck*, and

242. 4. *Secondly*, on those of *the Larynx;*

243. 5. In the former case, the affection designated Trachelismus is the cause of the compression of the *Venous Network of the Neck*, of impeded return of blood from the encephalon, and of

244. 6. The *milder* forms or threatenings of Apoplexy, and of Epilepsy;

245. 7. In the latter case, the affection is designated *Laryngismus*, and it is of two kinds—viz.

246. 8. 1. Cerebral, and apoplectic or paralytic, with partial closure of the larynx, assuming the form of laryngeal stertor,—chiefly, but not entirely, in *inspiration*—as in the experiments of Legallois;

247. 9. 2. Spinal, and spasmodic, with still greater closure of the larynx, and still more impeded respiration, and especially *expiration*.

248. 10. The former of these is associated with apoplectic coma.

249. 11. The latter is the essential condition of *Convulsion*, and its effects;

250. 12. The effects of trachelismus would be superseded by venæsection;

251. 13. The effects of laryngismus are superseded by *Tracheotomy;*

252. 14. By this measure, paralytic laryngismus, or stertor, and its effects, or the *apoplectic state*, when of inorganic origin, is *removed* or *mitigated;*

253. 15. By this measure, *Convulsion*, with its effects, is *prevented;*

254 I trust that, whilst convulsion is thus prevented, all its dire *effects* will be obviated; and that one of these, the susceptibility to returns, may itself subside, and the dire disease be entirely cured.

255. I conclude this recapitulation by observing that—

1. The difference between the Apoplexia mitior and the Epilepsia mitior, is the difference between obscure and evident Trachelismus.
2. The further difference is that between psychial and spasmodic symptoms, or that between affection of
    1. The Cerebrum, and of
    2. The Medulla Oblongata.
3. The difference between the Apoplexia gravior and the Epilepsia gravior, is that between
    1. Paralytic, and
    2. Spasmodic Laryngismus.
4. Apoplexy, when extreme, is attended by Convulsion; extreme Epilepsy induces apoplectic coma, &c.
5. Both may terminate fatally—
    1. Without post-mortem appearances;
    2. With Congestion only;
    3. With the *Effects* of this latter; viz., Ecchymosis, rupture; serous effusion; softening.

Conclusion.

The term *Trachelismus* and *Laryngismus*, which I have adopted in these pages, when viewed in connection with their exciting causes, the modes of action of these, first on the muscles of the *Neck* and *the Larynx*, then on the *Venous Network* of this region, and then on the *Nervous Centres*, contain whole volumes of *living Pathology*.

This living pathology I recommend for further cultivation, in the place of that mere *caput mortuum* presented in post-mortem, or it might be designated post-morbum, appearances.

I also recommend that this pathology be pursued in a special manner in our private practice. It never can be adequately investigated in the patients who resort to our *Hospitals* whose cases are chiefly those of organic *Origin*, or involving organic disease as *Effects* of the previous trachelismus and laryngismus.

I would finally observe, that, although I have treated of trachelismus and of laryngismus as distinct, and of apoplexy as cerebral, and of epilepsy as spinal, generally, yet each of these involves the other. Trachelismus includes the larynx; laryngysmus adds to trachelismus and its effects. Apoplexy beginning with trachelismus is spinal; for trachelismus is the result either of direct or diastaltic spinal action; epilepsy, in its turn, is cerebral in one of its immediate and many of its remote *effects*.

The Neck, the Larynx, inclusive, is the *medical Region* in which all these influences *meet*. By means of the structure and actions in this region, the whole *Class* of the diseases of the nervous centres, of inorganic origin and of paroxysmal form, the threatenings of apoplexy and of epilpesy, are explained; and I trust we may no longer say, with Esquirol—"Les symptomes de l'epilepsie sont tellement extraordinaires, *tellement ou dessus de toute explication physiologique ;* les causes de cette maladie sont tellement inconnues, que"—&c. Indeed, I think that in few diseases are the links of causes and effects, in a rather lengthened chain, so distinctly traced and explained. This has been accomplished by means of the light which has been thrown upon the whole subject of the diseases of the nervous system by our knowledge of the *Spinal System.* This knowledge is as a torch in the hand of the practical physician, and the source of all *Diagnosis* in regard to these diseases. *Physiology*, *Theory*, and *Observation*, become *allies*, and lend each other mutual aid.

I trust I may be allowed, in conclusion, to express a hope, that the suggestions which fill the preceding observations may be received with some degree of benevolence. They are among my last legacies to my noble and exalted profession—noble and exalted, were detraction within its own ranks, and derogatory views on the part of the public, to cease, and its Science to be duly appreciated. In Medicine alone is discovery a misfortune to its author.

Treatment of Chilblains.—M. Trousseau, physician to the hospital for sick children in Paris, recommends the following applications for chilblains:—Wash the parts three times a day with a solution of fourteen drachms of borax in a pound of water. Four tablespoonfuls of this solution, added to a quart of warm water, will be sufficient for the lotions To repel or prevent chilblains. M. Trousseau advises the following lotion to be used night and morning: sal ammoniac, five drachms; water, ten drachms; aromatic tincture, two drachms and a half. Dissolve the salt in the water, and add the tincture. When the chilblains are broken, they may be washed with the following solution: tannin, two drachms and a half; water, one pound. Or they may be anointed with the following compound: extract of krameria, two drachms and a half; mucilage of quince-seeds, a sufficient quantity. Make a soft electuary. The latter preparation is likewise useful in chapped lips.

Nitric Acid in Rain Water.—M. Barral has lately found, after very careful and well conducted experiments, which stretched over more than six months, that the rain water collected at Paris contains appreciable quantities of nitric acid. This discovery has been confirmed by a committee appointed by the Academy of Sciences, and composed of Messrs. Dumas, Boussingault, Gasparin, Regnalt, and Arago. It is supposed that the presence of nitric acid in rain water will explain certain hitherto ill-understood telluric phenomena, and lead to some practical applications. It is due to Dr. Bence Jones, of St George's Hospital, to say, that he had already pointed out the fact as to the rain water collected at Kingston (Surry, Melburg Dorset, the neighbourhood of Cork, and in London.) Dr. Bence Jones was herein in opposition with Liebig, who has denied that rain-water contained appreciable quantities of nitric acid.

Clinical Lectures

Delivered at Guy's Hospital.

BY JOHN HILTON, Esq., F.R.S.,

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(Continued from May No., p. 351.)

LECTURE III.

On Fractured Ribs connected with Emphysema.

Fractures of ribs connected with emphysema ; case of fractured ribs from severe blows on the chest ; emphysema manifested very rapidly, and as rapidly subsiding ; complete recovery ; mechanism of the escape of the air ; why does the air not pass into the pleural cavity ; influence of old adhesions in preventing the cavity of the pleura from filling with air ; advantage of strapping in cases of fractured ribs with emphysema ; escape of air into the areolar tissue without any external wound ; possibility of air being admitted through the wound, as in fracture of the skull, thigh, &c. ; more or less certainty as to the fact of the lung being injured ; various ways in which emphysema may occur independently of broken ribs ; air in the cavity of the pleura ; air in the anterior and posterior mediastina.—Case of a boy who had emphysema, but no fracture of ribs, in whom the air occupied the posterior mediastinum.—Case of a young man with whom straining caused the rupture of pulmonary cells and diffusion of air into the posterior mediastinum ; post-mortem examination—The tracing of the course of the air when the pleura pulmonalis is not ruptured ; causes of the symptoms manifested when air has penetrated the posterior mediastinum ; the most common cause of emphysema is fracture of ribs, with laceration of the pleuræ ; possible consequences of a severe blow upon the chest ; the most frequent causes of emphysema ; extent of the emphysematous distention ; rapid disappearance of emphysema ; the manner in which the air escapes, unknown to the surgeon ; prognosis of fractured ribs, with emphysema ; analogy with anasarca ; treatment of traumatic emphysema.

When I had last the pleasure of addressing you, I dwelt principally on the means in our possession for diagnosing fracture of ribs, and I offered some remarks on the latter injury when complicated by pneumonia. I laid before you my views as to the mechanical and medical treatment of such cases, and I am fain to hope that you are fully prepared to act according to the principles laid down, when your assistance is requested in accidents of this kind. According to promise, I now pass to the consideration of fractured ribs, when such lesion is accompanied by emphysema, and at once read to you a case strikingly illustrative of this complication:—

"Mary Ann H——, aged twenty-five years, was admitted May 25th, 1850, under the care of Mr. Hilton. The patient is a married woman, and has enjoyed remarkably good health; she has always had abundance of food, and is in the habit of drinking to excess. On the morning of her admission, her husband and herself (both being intoxicated) began quarrelling, and he beat his wife repeatedly about her left side and arm with the kitchen poker. She fainted, and, according to the statement of a woman who was present, the patient was struck several times whilst in the swoon, a condition, favourable to the supervention of fracture on the application of much force. She was rescued from the violence of her husband, and laid upon the bed, and when she had revived a little, was brought to the hospital, being very sick during the journey.

"On admission into the hospital, fractures of the fifth, sixth, seventh, and eighth ribs were detected, and there was evidence of a considerable amount of sub-cutaneous emphysema." You cannot fail to remark in how very short a time external emphysema had taken place. "The patient's left arm was very much contused and swollen; she complained of intense pain at each act of respiration, and was distressed by a very severe cough. Her side was now tightly strapped —this measure afforded her much relief—and cold lotions were applied to the injured arm. Mr. Hilton ordered also twenty minims of antimonial wine, and the same quantity of tincture of henbane, to be taken in a mixture of acetate of ammonia every fourth hour.

"On the second day, the patient appeared rather better, but still complained of much pain, and as the bowels were confined, she took a dose of sulphate and carbonate of magnesia. On the third day, the improvement continued; the emphysema was fast disappearing." You perceive how soon the emphysema gave way. "The arm was less swollen, and more comfortable, and the cough rather better. Pulse 84, small. On the fourth day, the patient breathed with more ease, and on the fifth, she left the hospital at her own request, free from any urgent inconvenience. She was directed to apply again at the hospital in the course of a few days; and as she never made her appearance after her discharge, she is presumed to have completely recovered."

You will observe this case presents one special and distinct feature—viz., the emphysema supervening upon the fractured ribs, and that is the reason for my adducing it. The latter injury was inflicted by direct violence; it is very probable, or almost certain, that the instrument used by the husband (the poker) drove the fractured ends of the ribs inwards, and that one or more of these wounded the lung; but the elasticity with which the ribs are endowed enabled them to resume their original position,—to rebound in some degree from the lung, and leave an aperture through which the air escaped into the external areolar tissue, thus producing the emphysema.

But in considering these pathological phenomena, it may be asked why the air did not escape into the pleural cavity? Before discussing this point, just cast a glance on this diagram; it represents a transverse section of the chest; it brings to your recollection that the œsophagus, pneumogastric nerves, thoracic duct, aorta, &c., surrounded by areolar tissue, occupy the posterior mediastinum; and it well shows in how close a contact are the pleuræ pulmonalis and costalis, merely, at most, a synovia-like fluid intervening. Now, you see, that after wounds of the lung, there is nothing to prevent the air passing into the cavity of the pleura, and you will understand how it may, by its accumulation there, cause the lung to be compressed towards the spine and median line of the chest. But you have heard, amongst the circumstances of the case, that the patient is a drunkard, and you are perhaps aware that with such people pleural adhesions, as the result of pleurisy, are very frequent. This woman was probably so situated; the adhesions between the pleuræ, closing the interpleural space, prevented the air from passing into the otherwise cavity of the pleura, (where it would have caused much distress of breathing and danger,) and compelled it to go direct into the subcutaneous areolar tissue. I think I may say that in this patient the habits of intemperance, though very baneful in the end, had, under these circumstances, so far an advantageous and a beneficent effect.

From the account of the case, we learn that the patient's chest was strapped in the manner I have described before; my object here was to prevent the external and internal parts from moving upon each other. Without going into a detail of the direction of the movements of an expanding lung, I may say in general terms the lungs expand during inspiration from their own centre, whilst the costal parietes of the chest, having their fixed points above and posteriorly, move upwards and outwards. These parts, with their pleural surfaces, therefore, do not move in the same direction. Hence a tendency of the apertures in the pleura pulmonalis and pleura costalis to lose their relative position of directly opposite each other, as they were at the moment of the accident, and a danger of the air passing from the lung into the cavity of the pleura. The strapping was then applied, in order to keep all the points of the thoracic parietes and lung exactly opposite each other, or as nearly so as possible, and the two apertures just mentioned in direct communication. An important point to notice is this: By means of perfect quiet, the wound of the lung is extremely likely to be sealed up with lymph in the space of twenty-four hours, but such would not be the case if free and tumultuous movements were permitted.

Allow me now to make a few general remarks on emphysema. What is meant by this term? It might be called an escape of air within the economy, in varying directions, according to the circumstances of the case. Now, as to emphysema as connected with fractured ribs, you must observe, that when the fracture is not associated with an external wound, it may at once be inferred that the air which is escaping into the areolar tissue must have been freed by a wound of the lung. When, however, an external wound does exist, and the emphysema is limited and stationary, such diffusion of air may have been caused by its admission through the external wound. Indeed, I have seen a limited emphysema occur in cases of compound fractures of other bones besides the ribs, as of the skull, the thigh, leg, and lower jaw. When the skull is broken and emphysema is produced, there is generally a wound of the frontal bone, implicating the frontal sinus, and the air passes under the occipito-frontalis muscles. Thus, in fractured ribs, with emphysema, we might suppose the lung uninjured if there be a wound of the skin; but if there be no such external wound it is certain that the lung has suffered perforation.

But besides these circumstances, you should bear in mind that areolar emphysema may occur from without, independently of broken ribs, by an external perforation of the skin. Again, emphysema may occur from within, independently of broken ribs, by a rupture of the lung. In such a case, the course of the air will be determined by the giving way or not of the pleura pulmonalis. If the latter be ruptured, the air will of course escape into the pleural cavity, causing great distress of breathing by compressing the lung, though old pleuritic adhesions may limit the diffusion of the air, and considerably diminish the distress. If the pleura pulmonalis be not ruptured, then the course taken by the air will be very peculiar; it may come to occupy the anterior and posterior mediastinum, and even raise the pleura from off the diaphragm.

I will just adduce the case of a boy in whom such a lesion took place; you will find it extremely instructive. The patient was about eleven years of age, and had the misfortune of being run over a short time before he was brought to the hospital. The vehicle had passed over his chest, and when admitted he was under the influence of a severe shock. The whole frame was cold, the boy was very low, and he could not swallow. There was no external wound whatever, but the whole of the neck and the face were emphysematous, and he was in the greatest possible distress in his breathing. When touching the radial artery, crepitation could be felt, the latter being of a deep kind, and appearing to accompany the artery only. It was, in fact, extremely likely that the air had crept down the sheath of that vessel, and had, according to all appearance, diffused itself with the arterial system of tubes, rendering the pulse so extremely feeble.

The boy was put to bed, and stimulants were given him. I at the same time made incisions into the neck, in order to free the accumulated air, and this measure seemed to give the boy great relief. The emphysema gradually went off, and the patient was progressing very favourably, when, after about ten days, he imprudently exposed himself to cold, was attacked with pneumonia, and died. On examination, no fractured ribs were found, although carefully sought for, and the fearful emphysema which had ensued upon the accident must have arisen from a rupture of a certain number of pulmonary cells, without associated broken ribs.

You will see how obscure the full comprehension of such cases must naturally be; and as it is important that you should be able to form a tolerable diagnosis of such cases, I will bring another before you, replete with interest and instruction, and which will fully exemplify the extraordinary course of the air when it escapes from the air-cells, but with an unbroken pleura pulmonalis.

The case refers to a private patient of mine, who was formerly a pupil here. He was about twenty-six years of age, and suffering from phthisis, and had been ill during several months. One evening, while straining at the water-closet, he felt something suddenly give way between his shoulders; he was then attacked with dyspnœa and difficulty of swallowing. The distress in breathing and difficulty in swallowing increased rapidly, and I was hastily sent for about four or five hours after he had felt something give way in his back. I found him sitting up in bed, supported by pillows; his breathing most difficult and gasping; pulse small, and very weak; hands and feet, nose, ears, and lips, cold and congested; pain in his back; his voice feeble, and incapable of speaking a long sentence, so small was the quantity of expired air; any such attempt at speaking augmented his distress; he was therefore directed not to say a word, but to write his wishes. The crepitation of emphysema was felt throughout the whole of his neck, extending amongst the deep structures under the deep fascia, making his neck thick and large, and rendering the larynx and trachea almost fixed. The air occupied to distention all the sub-fascial space reaching to the temporal fossa, and producing a bulging of the temporal aponeuroses. The air occupied the neighbourhood of the clavicles and the axillæ, but had not been diffused, either superficially or deeply, beyond this in the upper extremities, excepting in the course of the brachial artery, and its divisions into the ulnar and radial arteries; along the tracks of these blood-vessels, the minute crackling of extravasated air could be distinctly recognised on pressure by the finger; no other emphysema existed at that time below the shoulder. The exterior of the chest under and about the pectoral muscles was occupied with air. But even with this extent of emphysema, there was a disproportionate shortness of breath. Ether and ammonia were administered in small quantities; for only a little could be swallowed at a time, and that with difficulty. His dyspnœa proceeding, and his life in immediate danger from suffocation, I made a free, clean, and direct incision nearly an inch in length on each side through the cervical fascia, at the posterior margin of the sterno-cleido-mastoideus; the air came puffing out of the incisions. This escape of air or removal of pressure gave him some temporary relief; subsequently, other incisions were required, and always afforded some benefit to the patient's condition. Notwithstanding all such effort, and the effects of the administraction of stimulant medicines, the dyspnœa continued, and so did the difficulty of deglutition; indeed, after a few hours from my first seeing him the attempt to swallow was dispensed with, and enemata, both stimulating and nutritious, were frequently administered, but without permanent effect, and he died on the second day after this attack, Oct. 13, 1845.

I will now trouble you with a detailed account of the post-mortem examination, which took place forty-eight hours after death. There was very little evidence of putrefaction; none was noticed, except at the posterior part of the body, the result of gravitation. The emphysematous state of the areolar tissue extended from the neck, which was very full of air, into the face, puffing the cheeks, and rendering them white from distension. There was also air diffused throughout the back, chiefly, however, on the right side; and the parietes of the thorax were everywhere emphysematous. Neither the right nor the left leg was affected; but the parietes of the abdomen, superficially to the muscles, were slightly emphysematous. There was no emphysema in the muscular layers forming the walls of the abdomen; but the interposed areolar tissue of the thoracic muscles was occupied by air.—Cavity of the abdomen: No air behind the peritonæum, nor any fluid in that cavity; liver larger and coarse; bile pale; gall-bladder small; spleen natural; kidneys large and coarse, the cortical structure becoming white with deposit; bladder small and empty; stomach and intestines free from disease. On raising the sternum, the areolar tissue of the anterior mediastinum was found occupied by air, distending it. The whole track of the phrenic nerves was occupied by air, distending the areolar tissues immediately surrounding them. This emphysema, following the defined course of the phrenic nerves, reached to the diaphragm, and had separated the pleura from that muscle to the extent of two or three square inches on the left side, and to a less extent on the right side.

I will just make a short pause here, to remind you that the phrenic nerves, at the upper part of the chest, enter and thence pass through a sort of fibrous tube between the pleura and pericardium; air had penetrated this tube, and had, by compression of the nerve, rendered respiration so difficult. Along this phrenic nerve the air had then descended to the diaphragm, where it acted with such force as to raise the pleura lining the muscle. You may imagine, from the consideration of the latter fact, how much pressure must have been exercised on the phrenic nerve, for the connexion between the pleura and convex surface of the diaphragm is very firm, and great force is of course required to raise the one from the other. But the diffusion was very extensive; the posterior portion of the sub-pleural space between the ribs and the spine, and the posterior mediastinum, were quite full of air.

No air had penetrated into either pleura, nor into the pericardium, the latter being occupied by about an ounce of fluid, slightly tinged with blood. Heart large; left ventricle slightly hypertrophied; mitral valve decidedly contracted and thickened; aortic valves thickened, and somewhat rigid; some opaque deposits, about the size of pins' heads, were observed in small groups under the lining membrane of the ascending aorta, a little below the origin of the arteria innominata, and opposite to the aortic opening. The blood was black, and feebly coagulated—firmer, however, on the right side than on the left. No air had passed through the pleura or pericardium; no exosmosis or endosmosis of air.

The left pleura was free from adhesions, except towards the apex on the posterior part, where old ones were found; the rest was free. No effusion of fluid was noticed. On raising the left lung, the left serous wall of the posterior mediastinum was seen projecting outwards towards the lung, being forced into that direction by great distension of air. Near the mediastinum the pleura costalis was, in various places, raised from the ribs by air, and the same thing had occurred slightly where the pleura passes from the sternum over the cartilages of the ribs.

There existed strong adhesions opposite the middle of the convex surface of the right lung and the fifth rib; and around the base of the pulmonary end of this adhesion the pleura pulmonalis was thickened, opaque, and somewhat contracted for about two inches square. Under this was subsequently found a cavity, which might have lodged a pigeon's egg, lined by a well-marked opaque membrane.

Extensive adhesions of the right pleura were noticed near the apex of the lung, towards the median line, reaching along the concave surface of the lung to near the entrance of the right bronchus into the lung. The rest of the pleura was free from adhesions.

It was now important to discover the sources of the extravasated air and its point of escape from the lungs. After very careful inflation of these organs in situ, it was ascertained that the air had escaped from a cavity covered by the above mentioned adhesions, just over, and communicating with, the right bronchus. The air issued at two points, one through the wall of the cavity direct into the posterior mediastinum; the other outlet took a course under the pleura pulmonalis to the point of entrance of the bronchus into the lung, raising the pleura pulmonalis from the lung, and thence proceeding into the posterior mediastinum, the openings being very small. The pulmonary cavity presented cavernous walls, and was occupied, in part, by dark, offensive, and broken-down pulmonary tissue, the result of recent mischief.*

Sections of the right lung presented several small cavities in the upper lobes towards the median line. The whole of the lung was filled with small accumulated inflammatory tubercles, in groups about the size of large shot; others as big as peas. Numerous lobules presented the ordinary pneumonic consolidation.

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* I had seen this sub-pleural course of air from the posterior mediastinum twice before this case; each instance presented the same general and local symptoms; but no opportunity [before this case happened] had been offered which could enable me to ascertain the cause of the peculiar, and, as I believe, the pathognomonic and diagnostic course which the extravasated air had pursued.

No cavities were found below the upper lobe; the left lung was studded with the same kind of tuberculous deposits, but there were no cavities. Recent pneumonia had occurred here and there in lobules or groups of lobules.

The bronchial glands were enlarged. The larynx and trachea presented nothing remarkable.

This case clearly demonstrates the course of the air when emphysema arises without rupture of the pleura, or when it has entered the posterior mediastinum. It is very probable, that whilst the patient was straining, the air had been forced from the bronchial tube into the cavity adverted to, and thence into the posterior mediastinum. Now, you are all aware that the latter is continuous with the middle mediastinum, which transmits the phrenic nerves, and also with the anterior mediastinum, and that its boundary above is the cervical fascia, which forms a dome over the entrance of the chest. This dome, as you know, is perforated with holes for the passage of vessels and nerves; and it is through these holes, into the sub-fascial spaces, and along the sheathes of the blood-vessels and nerves, that the air passes and diffuses itself, pursuing the course of the blood-vessels, much in advance of the more general diffusion, and so presenting itself, as it were, a pathognomonic or characteristic indication of the escape of the air from the lung into the posterior mediastinum, and distributed therefrom. The air, having escaped from either bronchus or the thoracic portion of the trachea, might produce the same series of symptoms as observed in the case now before your notice. Hence you may derive valuable practical information. When you, for instance, find the neck full and crackling with air, and the large arteries only of the upper limbs surrounded by it, and if there be no external wound and no fractured ribs, the inference must be, that the air has escaped from a bronchus or the trachea, and found its way into the posterior mediastinum. Recollect, then, these points when you come in contact with such a case, so that you may be enabled to form a correct diagnosis.

The peculiar dyspnœa noticed in these cases is owing to the compression, by the air, of the phrenic and eighth pair of nerves; and the difficulty of swallowing arises from the pressure exercised upon the œsophagus by the air diffused through the posterior mediastinum. The air, traversing the limbs, exercises a compression upon their arteries; hence arises an accumulation of blood in the aorta and left side of the heart. And it should, lastly, be observed, that if the air in the posterior mediastinum raises, after great tension, the pleura costalis, then the air reaches the areolar tissue of the exterior of the chest, and finally produces the ordinary external emphysema. When you see these symptoms manifested in a given case, I expect you will have no difficulty in determining the nature of the accident.

But you will do well to remember that these cases of emphysema without fractured ribs are the exceptions; most frequently there is a wound inflicted upon the lung by the ends of fractured ribs, and emphysema, pursuing the ordinary course, thus ensues. You should notice, besides, that a severe blow upon the chest, or other external force acting violently upon it, may, without causing any fracture of ribs, lead to a tearing of the interior of the lung, almost immediately followed by copious bloody expectoration, this symptom not being accompanied by any recognisable emphysema, nor any evidence of broken ribs. Pneumonia may occur under similiar circumstances, from the lung being bruised. I was informed by one of the pupils, of the case of a prize-fighter who came to his death in this manner: he received a severe blow upon the chest, which, without breaking any ribs, literally tore the lung; extensive extravasation and spitting of blood immediately followed, and he died in a short time. The post-mortem examination revealed the existence of the lesion which I have just mentioned, and no broken ribs.

But, I repeat it, the most common association of emphysema from external injury, is *fractured ribs* and *perforation* of *both pleuræ and the lung* by the ends of the fractured ribs. It may happen that the latter remain fixed in the lung; the mischief is then of a very severe nature. Or, after having been thrust by external force into the lung, they may resume their position, leaving an opening in the lung through which the air escapes into the pleural cavity; and when an opening has taken place in the pleura costalis, the air may be driven to the exterior of the chest.

As to the course which the air takes, it must naturally be determined by the continuity of the areolar tissue and the attachments of fasciæ. As to the *extent* of the emphysema, you easily perceive that it will vary in different cases, according to the size of the openings of communication with the lung. In the first case which I this day brought before you, it was reported as considerable, yet in three days it was nearly gone.

This rapidity in the disappearance of emphysema naturally suggests the question as to what becomes of the air thus diffused through the sub-cutaneous cellular tissue. We find that after a few days the air is absorbed; but it is absorbed by the lymphatics or veins, and carried into the blood? Is it possible that so much air can be mixed with the blood without very serious, if not fatal consequences? I very strongly doubt that this kind of absorption takes place. Does the air escape through the skin or mucous membrane? I know not; it really disappears, but by what channel is not explained. It might be worth while to put a patient of this kind into a warm bath for as long a period as is quite safe, to observe if there be any escape of air from the surface of the body.

Now, as to the prognosis of cases of this nature, I consider that emphysema need create no alarm, except in relation to its pressure upon the blood-vessels (especially the veins,) or other parts important to life, such as those which minister to the respiratory functions. It is plain that, independently of any uneasiness which the trachea, lungs, or pneumogastric nerves may experience, the pressure of air upon the muscles of respiration impedes, and interferes with, their free action. Another source of danger should not be overlooked—viz., the fact that the pressure upon the superficial veins occasions a great accumulation of blood in the interior of the body, more particularly at the heart and lungs, which organs are already overburdened by the immediate results of the fractured ribs.

You will be pleased to notice that the same phenomena are observed in general anasarca. If, then, emphysema of the sub-cutaneous cellular tissue be connected with some danger, it becomes a matter of importance that such cases should be properly treated.

I would advise you not to be in a hurry to interfere; but when you wish to give relief, it may be done by puncture or incision. Punctures are sometimes made into the emphysematous parts, and they are strongly recommended by some surgeons; but I prefer incisions to punctures, as the latter, as far as I have seen, act very unsatisfactorily. These incisions should be made with care, and important parts be sedulously avoided; you will find that a length of half an inch will be quite sufficient, but the incisions must be precise, clean, done at once, and deep enough to give free exit to the air pent up in the cells of the sub-cutaneous areolar tissue. Do not tear or lacerate the walls of the incisions by introducing the finger or forceps, for the purpose of enlarging them; for if the cellular tissue be lacerated into shreds, it is more likely to induce coagulation of the blood associated with the incision, and so contribute to a closing of the interfibrillar spaces of the areolar tissue; indeed, without this additional interference with the passages of the air through the incision, the air itself in passing seems to have a tendency, by its drying effects upon the exposed structures, to seal the areolar tissue; hence it becomes necessary to make more incisions. In anasarca, however, punctures act very favourably, and produce great relief, principally by disencumbering the respiratory muscles of their load of fluid, and so permitting respiration to be more freely performed. Such punctures also allow a great accumulation of blood in the superficial veins, and thus act very beneficially by relieving internal congestion. Precisely the same reasons, in explanation and as principles for practice, apply to cases of emphysema. I have, finally, to observe, that in cases of extreme and progressing emphysema from fractured ribs, unconnected with an external wound, it will be advisable to cut down freely to the fractured ribs, if feasible, in order to make an external wound, so as to allow the air to pass towards the external parts and exterior of the body, rather than accumulate in the chest. I have done this in practice with great advantage. You can thus give free exit to the air; such measures will be eminently necessary when you perceive that a dangerous kind of emphysema is making progress.

I venture to hope, that the suggestions which I have brought before you this day will be sufficient to guide you in the treatment of cases of emphysema connected with fracture of ribs, or brought on by any other traumatic cause. The safety of your patient will mainly depend on the carefulness with which your diagnosis and treatment of his case will be conducted. I make no pretension that I have examined the whole subject, but with this lecture I must bring to a close what I had to say regarding fractured ribs, and the complications which may accompany this lesion; next time we meet I shall direct your attention to a certain number of cases of stone in the bladder, which have lately been treated in this hospital.

Clinical Lectures
ON
DISEASES OF THE JOINTS.

By SAMUEL SOLLY, Esq., F.R.S.

(Continued from August No. p. 106.)

The case I have just read is replete with interest to the practical surgeon. Disease of the hip-joint is for the most part a strumous disease, attacking children before the age of puberty. The offspring of the poor in this metropolis are especially liable to it. Scarcely a taking-in day passes without one or more of these poor creatures presenting themselves for admission. In some of these cases, though I believe rarely, the disease has commenced in the cancellous structure of the head of the thigh-bone. It is a scrofulous disease of the bone, and extends from its tissue to the cartilages of the head of the femur, without involving the acetabulum. These are cases in which the operation of excision of the head of the bone may be executed with advantage; but they are rare, and it is extremely difficult to distinguish them from those in which the disease has not been limited to the thigh-bone, but in which the acetabulum has become implicated.

The disease is most frequently set up by inflammation of the synovial membrane, induced by exposure to cold, or over-exertion, acting on a frame debilitated by London cachexia; sometimes it results from a direct injury, as in the case just related, and another to which I have often directed your attention, in George's ward, and the details of which I shall comment upon in the course of these lectures. When the disease can be traced to accident, even if the constitution on which it falls is decidedly strumous, there is always more reason for anticipating a favourable conclusion than when the disease comes on without any apparent cause; and so insidious is this *morbus coxæ* in some instances, that Mr. Ford states on his own personal knowledge that caries of the bone in the cotyloid cavity, and on the head of the thigh-bone, may exist before any external symptoms had proved its presence there. Generally speaking, the child is first observed to limp in his walk, and on being questioned by his parents, complains of pain in the hip, or not unfrequently on the inner side of the thigh, near the origin of the adductor longus muscle. The pain is not usually severe, and consequently is too often neglected by parents until the disease has considerably advanced, as we have seen in the case which is our text for these observations.

If the patient is brought to you in this stage, you find that pressure over the joint in front will be attended with pain, for the synovial membrane is less covered in this situation than behind, and it is therefore more susceptible to the touch. Extension of the limb on the pelvis, and swinging it in the air while the weight of the body is sustained by the opposite limb, is also extremely distressing to the patient.

In the early and acute stages of the disease, when the joint is distended with an increased quantity of synovia, the buttock appears fuller than the opposite side; and this same fulness may be observed on the front of the joint in the groin. Still it must be allowed, that though it is not difficult to diagnose acute inflammation of this joint, yet it is difficult to state accurately the extent to which that inflammation has run. The hip joint is so much covered in by muscles, that we cannot detect all the changes which go on in it, as we can more or less perfectly in the knee-joint, which from its exposed position can be much more easily examined. In the case of the knee-joint, we can compare the shape, form, and appearance of the sound joint so much more accurately with the diseased than we can in the hip joint.

It has been said, that in the early stages of hip disease the limb is lengthened. But here again the change is more apparent than real.

I believe that a very slight degree of elongation does take place, and from the following causes; but the very enumeration of the causes will convince you that this change must be almost inappreciable.

1st.—Relaxation of the muscles, allowing the bone to drop from the socket.

2ndly.—Effusion into the joint, distension of the capsule, and protrusion of the bone.

3rdly.—Thickening from inflammatory deposit of the adipose substance which occupies the centre of the cotyloid cavity.

In a practical point of view I consider this lengthening, though as I have already said, it is more apparent than real, important as diagnostic of the acute and active stage of the disease.

It is only in this stage that I have found any local depletion of service, for, as a general rule, and certainly in the more advanced stages, leeches, and other means of local blood-letting, only do harm, by weakening the powers of the patient. It is in this stage that absolute rest is so important, and that calomel and opium are of real use.

Pressure of one articulating surface against the other does not much affect the patient, unless there is ulceration of the cartilages; and therefore this manœuvre is often a means of diagnosing this additional mischief. The mere pushing the os femoris directly into the acetabulum will not always give rise to pain, even if there is ulceration; but by giving the thigh a rotation inwards, thus jerking the bone against the inner side of the cotyloid cup, you can generally detect any increase of disease beyond mere synovitis.

After the disease has existed for some time the rotundity of the buttock is lost, and the edge of the glutæus muscle no longer stands out in bold relief, the fissure separating the nates from the thigh almost disappears, and the line becomes more oblique. These changes all depend on the wasting of the muscles from disuse, consequent on the state of the joint admitting of but little motion.

The patient often complains of pain of the knee, referring it to the inner side. This pain has usually been considered sympathetic, and I believe that it generally is so, but M. Bonnet, to whose work I shall again have occasion to refer, considers that the pain arises from actual disease in that joint. (Tome ii. p. 275.) He is not able to prove this opinion by numerous facts, for he says, "I have neglected, as preceding authors have done, to open the knee-joint,"—in those cases in which he has dissected the hip joint; but on one occasion when the hip had suffered from chronic disease, he found synovial disease in the knee, with absorption of the cartilages. He attributes this secondary affection of the knee-joint to the compression and distension which the knee-joint suffers from the false position in which it is placed by the fixed flexion and inversion of the thigh.

In the case of E. C——, there was unequivocal shortening of the limb, so much so, that she required a sole to her shoe of at least four inches to enable her to walk at all evenly. Now whence this shortening? If we look at the head of the bone, we find its convexity diminished, but that is all. If we look to the neck, we find it very nearly the ordinary length in a female of her stature. No absorption of its exterior has taken place; the obliquity, also, is normal. It has not assumed the horizontal line which shortens the limb in old age. The explanation is simple, and rests upon a very important law in the economy—namely, that the development of every part of the living organism which is not normally employed during growth, is more or less arrested; and I feel no hesitation in saying, that if the diseased thigh-bone had been compared with its fellow on the opposite side, a considerable difference would have been discovered in the length, size, and height of the two bones.

In some cases of this disease, as you may see in one of my patients now in the hospital, the os femoris is actually dislocated, and the head of the bone lies on the dorsum of the ilium. In such cases there is no doubt regarding the shortening; but there are cases in which there is apparent dislocation, and the signs of which have been so distinct in the opinion of the attending surgeons, that they have felt no doubt on the subject, but in whom a post-mortem examination has proved that there was no displacement whatever.

But these observations must not lead you to suppose that, in all cases of disease of the hip-joint, the shortening of the limb can be thus accounted for, or that there is a positive shortening of the limb in all cases of this disease.

We have already seen that one of the characteristics of morbus coxæ is, that the thigh is flexed upon the pelvis, so that the toe can only just reach the ground; and so far the limb is shortened. It is a point of some importance, and it is one on which much has been writen, to ascertain whether the limb is really, or only apparently shortened; and there are other cases in which the head and neck of the bone are removed under the action of carious absorption. Here, again, there can be no doubt the shortening is real. But in the greater number of cases the shortening is only apparent, not real. It arises from the alteration in the position of the pelvis from lateral curvature of the lumbar vertebræ; and if this curvature has not existed so long as to have become permanent, the error may be detected by placing the pelvis of the patient, when in bed, at its proper right angle to the spine, and then, if the diseased joint will permit the extension of the thigh, placing the limbs parallel. If it cannot be accomplished in this way, accurate measurement from the anterior superior spinous of the ilium to the patella, and thence to the sole of the foot under the ankle, will generally decide the question.

I regard the case of E. C—— as one of strumous disease of the head and thigh bone. If this view is correct, I think we may derive some encouragement in our endeavors to arrest this sad affliction in the cases that come under our care. the disease appears to have been excited in the first instance by an accident; but she was not laid up or prevented following her employment at the washing-tub or elsewhere, as would have been the case if the accident had been attended by acute inflammation of the synovial membrane and ligaments, or its consecutive ulceration of the cartilages. It has been proved by Sir B. Brodie and others that this strumous affection goes on insidiously, accompanied by little pain. The disease, I conclude, extended slowly from the bone to the cartilage. The cartilages were slowly ulcerated; matter formed in the joint, and found its way out by several openings. In this stage of the disease she first came under my care, in 1841. I believe that the measures then adopted arrested the ulcerative process, and the suppurative action with its debilitating consequences. A conservative action was set up, fibrine thrown out, and that firm fibrous membrane organized which you see uniting the head of the femur to the acetabulum, and filling up the joint. But, unfortunately for the poor girl, a portion of the neck of the femur had died, was necrosed, and the dead portion, or sequestrum, which you see occupying the interior of the neck of the bone, remained to the day of her death a source of irritation and purulent discharge.

It behoves us, therefore, to enquire how this happened. My own view of the course of proceeding is, that the supply of blood was cut off from this circumscribed portion of the femur by the destruction of the ligamentum teres, and the artery which runs down the centre of it. The existence of this vessel has long been known to anatomists, and its importance in regard to the nourishment of this portion of the bone was well insisted on by Sir Astley Cooper in reference to the repair of fractures of the neck of the thigh-bone within the capsule. But this may not alone have been sufficient; and we may then adopt Mr. Lloyd's suggestion. This author states, and Sir B. Brodie agrees in this view, "that in the last stage of this disease the bones not only lose the preternatural vascularity which they possessed at an early period, but even become less vascular than healthy bone."

But whatever be the explanation of the fact, the fact itself is a most important one, that a sequestrum may remain for years in the neck of the femur, discharging matter, to the destruction of the patient, though the original disease of the joint which produced the sequestrum has been arrested, and the disease of the *joint* itself entirely cured. I do not know of any other case on record exactly similar. I have related it at the Pathological Society, and there were many surgeons of eminence present: none had seen its parallel.

Its importance can scarcely be over-estimated in a practical point of view. For though, in the first place, her general health during the later period of life seemed to preclude the possibility of operating without a fatal issue, and, in the second place, the revelation, after death, of extensive visceral disease, showed that the operation must have been in vain, even if she had recovered from the immediate effects of it,—there are other cases in which the patient's health is good, with the exception of that depression which must accompany profuse suppuration, and in whom an operation would be warranted, and very probably lead to a complete recovery. Caries, limited to a small portion of the neck or trochanter of the femur, sometimes occurs, which might as easily be removed, and with the same prospect of success, as the sequestrum we have just been considering. Mr. Knox, in some "Observations on Excision of the Pelvic Extremity of the Femur," has referred to several cases of this kind: two occurred in his own practice. In one which occurred in 1816, the disease had existed three years, but the operation of excision of the head of the femur had then never been proposed; and though Mr. Knox, feeling convinced that the joint was not implicated, was desirous of cutting down on the caries, his colleagues gave him no encouragement. The operation was unperformed, and the patient died exhausted. On dissection it appeared that the caries was limited to the outer surface of the trochanter major, and might easily have been removed by a file or by the head of a trephine.

The second case occurred in 1825 or 1826 The patient was a farmer in Roxburgh, and the case was so clear to Mr. Knox that he proposed operating; but as he was much out of health at the time, he intended recruiting his health by sea air &c., first. However, in the meantime, he fell into the hands of another surgeon, who, not having the same prudence, operated at once, and the patient sank. On dissection, it was proved the disease was confined to the trochanter major, the joint being perfectly sound.

Sir Benjamin Brodie has related the following very interesting case, in the last edition of his work, "Diseases of the Joint:"—

"W. Kendrow was admitted into St. George's Hospital on the 4th of Feb., 1837. The knee-joint was slightly enlarged. There was a sinus in the anterior part of the head of the tibia, a little below the joint, through which a probe could be passed into the centre of the epiphysis, where it came in contact with a portion of dead bone, apparently loose in the cavity in which it was contained. The motions of the knee were unimpaired.

"From the history which the patient gave, it appeared that about a year ago, he had suffered from a severe attack of inflammation of the head of the tibia, and at some time afterwards an abscess burst in front of the leg, leaving the sinus which has been just mentioned.

"There had been two or three attacks of inflammation in the interval which had elapsed between the first attack and the time of the patient coming to the hospital.

"March 2nd.—Having exposed the head of the tibia, I applied a trephine so as to enlarge the sinus which led to the interior of the bone. At the bottom of this sinus lay a detached piece of dead bone of the size of a horse-bean, but of very irregular shape; this was extracted without difficulty.

"A few days after the operation, the patient had an attack of rigor and vomiting, which was followed by an attack of erysipelas, of which he ultimately died.

"On examining the limb it was found that the whole of the upper extremity of the tibia was increased in size and density, there being a deposit of rough scabrous bone on many parts of its external surface.

"The cavity from which the dead bone had been extracted was of sufficient size to contain a large cherry, presenting a tolerably regular concave surface, but without any consolidation of the cancellous structure. This cavity communicated with the knee-joint in front of the spine of the tibia, by a narrow aperture. The cartilage covering the head of the tibia was in many parts completely absorbed, leaving the surface of the bone exposed, but not in a state of caries. In other parts the cartilage was converted into a substance bearing some resemblance to condensed cellular membrane, and in a few places a narrow strip of cartilage remained, not altered from its natural condition. In some parts the bone, where it was apparently exposed, was found, on close examination, to be covered by a very thin semi-transparent membrane. There was no pus in the joint. Although the head of the tibia was hard and dense, the condyles of the femur seemed to contain less earthy matter than under ordinary circumstances. The cartilage covering them was easily peeled off, and some portions of it were so thin that the colour of the bone could be seen through them.

"There is no evident reason why, if he had not been unfortunately cut off by the attack of erysipelas, this patient should not have recovered, retaining an useful joint."

Only a few days ago, in company with Mr. Fillitter, a surgeon in the Hackney-road, I saw a case in many respects similar to the one we have lately watched in the hospital. The subject of it is a gentleman of stout build, moderate height, and dark complexion; habits uniformly temperate. When a child of about six years of age, he was attacked with pain in the left hip-joint, and subsequently lameness. Twelve months afterwards, an abscess formed, giving rise to much constitutional disturbance, which reduced him greatly. He was seen at this time by Mr. Green, of St. Thomas's Hospital, who stated that he was labouring under disease of the hip-joint. After confinement for about a year and a half, during fifteen months, of which the abscess continued to discharge, and a second, apparently superficial, formed over the buttock, he regained health and strength; the affected limb was shortened, and the shortening increased after he got about. A small opening remained over the fore part of the limb for four or five years, yielding a very slight discharge. This wound re-opened three times up to the age of nineteen years, since which time up to the date of the present attack, he has had merely occasional stiffness, with pain lasting for a few days. For four years previous to the present attack, he believed himself to have been entirely free from any local symptom whatever, and has frequently walked twelve or fourteen miles without fatigue.

In March, 1851, whilst in good health, he became troubled with pain, somewhat of a rheumatic character, in the outer part of this hip-joint, causing an apparent weakness in the limb. This was preceded by occasional stiffness, and followed by an abscess which opened below the trochanter. Six weeks after its first appearance, it was attended with a good deal of suffering at night. In May, a second opening formed, and he again consulted Mr. Green, who recommended rest, and sarsaparilla internally, and gave it as his opinion that the head of the femur was diseased, but the acetabulum not so. The discharge from these openings was flocculent, with thin purulent fluid, and the formation of the abscesses was attended with a good deal of destruction of substance. A third and very large abscess formed shortly afterwards at the outer side of the joint, from which he suffered great pain, relieved only by lying on the sound side, with the affected limb resting on the other, thereby removing pressure from the joint. Towards the latter end of July, he recovered sufficiently to leave town, and remained in the country upwards of two months. On his return, he regained his usual health, and resumed his occupation. The limb, however, continued weak, and the openings remained. Early in November, in consequence, he imagines, of a little over-exertion, or the use of iodine injections, which he had tried for some weeks (strength of half a grain to one ounce of water,) a fresh abscess formed, with symptoms similar to the last, in the neighbourhood of the joint, and compelled him again to lie by; and shortly after, a superficial collection of matter, apparently a suppurating gland, made its appearance at the inner side of the thigh. After these had discharged their contents, he became free from pain, and has continued so up to the present time (January, 1851.) Minute fragments of bone have escaped with the discharge from the openings on the outer side of the joint.

Present state.—General health good; pulse ranging from 85 to 100; tongue clean; taste somewhat impaired, but appetite and digestion good; walks easily for a short distance, and climbs stairs readily; much exertion produces dull pain in the joint. There are on the fore part of the limb the depressed adherent cicatrices of old abscesses, and on the fore and outer parts four papillary openings of sinuses, three of which I ascertained to lead to bone, carious, certainly, but I could not detect a detached sequestrum; the discharge from these is flaky and thin. On the inner side are two openings of a superficial sinus. The limb is shortened to the extent perhaps of two inches and a half; is smaller in circumference than the right. The foot is everted, the trochanter approximated to the spine of the ilium; and on flexing the thigh on the trunk, which he can do almost to the full extent, the whole pelvis is most distinctly seen to move with it, rotating on the opposite femur, the joints of the lumber vertebræ yielding considerably at the same time; so that the thigh-bone on the diseased side moves *with* the pelvis, but not in the least *on* the pelvis. I believe that in this case there is a sequestrum in the neck of the thigh-bone, and I therefore believe that an operation is justifiable.

I heard of a case, a few days ago, in which the head of the femur was excised; and after the operation had been performed it was discovered that the head of the bone was sound with the exception of a sequestrum in its centre, which might have been removed without the excision of the head.

You will learn from these cases, that one of the results of disease of the hip, knee, and other joints, may be the production of a sequestrum in the head of the bone entering into the composition of the joint; and you will see how important it is to ascertain, by a most careful and searching examination, the presence of such sequestrum, with a view to its removal by operation.

I cannot conclude these observations without adverting to the existence of long-standing disease of the liver in this case. The frequent concomitance of disease of the liver with disease of the hip, has been pointed out by Mr. Coulson, who states that at the Margate Infirmary leeches and other measures are oftener applied to this organ than to the affected joint. I am unprepared to account for this alliance. I know not whether it should be considered cause or effect: but I am disposed to believe that they both arise from the same strumous diathesis. The fact is important, and you should remember it in your treatment of this disease.

OPERATIONS FOR THE REMOVAL OF CANCER.

A Clinical Lecture delivered at St. Thomas's Hospital

By JOHN SIMON, F.R.S.,

ONE OF THE SURGICAL STAFF OF THAT HOSPITAL, AND OFFICER OF HEALTH TO THE CITY OF LONDON.

(*Continued from July No., p. 31.*)

Desquamating epithelial cancers constitute the form of malignant growth most commonly found at the several orifices of the body; and the disease is very often attributed to the influence of some local irritation. The patient whose lip I removed on Monday ascribed his complaint to the use of a "foul pipe;" and indeed the use of the clay pipe is often spoken of as giving occasion to this disease. I remember to have seen a fatal case of cancer of the lip in a stone-cutter, who believed that irritation had first arisen in the part from the constant settling there of the calcareous and silicious dust generated in his employment. Cancer of the tongue commonly arises opposite some jagged and carious tooth, which has irritated the organ for a long while. Cancer of the penis, in a great majority of instances, is said to arise in persons who have through life been subject to phimosis, and in whom there has consequently been the irritative influence of retained secretions and filth. The liability of the anus and vagina to irritation, from neglect of cleanliness and the like, is sufficiently obvious.

These are favourite seats of epithelial cancer; and when the disease appears elsewhere, we can often find the similar explanation of some habitual topical irritant. Thus cancer of the scrotum, so frequent in chimney-sweepers, who fill its rugæ with soot, is unknown among other labourers. Cancer of the back of the hand has been noticed among such as have constantly used the hand shovel-wise amid rough or caustic materials. Some years ago I witnessed a very distressing case of cancer at the margin of the orbit (beginning at the inner side, and gradually spreading over the face) which was attributed by the patient (an astronomical observer) to the friction of optical instruments.* Thus, in a great number of cases, the sufferer with cutaneous cancer is able, with more or less plausibility, to impute his disease to the influence of local causation.

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* About the time when this lecture was delivered, a gentleman consulted me under circumstances that reminded me of the above. There was a small dry oval sore over the junction of the inner and lower margins of the orbit. Its border beyond the limit of ulceration was raised into a very hard rim, still covered by cuticle. The base also was hard, so that the whole, when moved about over the subcutaneous tissues, felt like a disc of gristle It might have served as an illustration of what is now (rather loosely) called a

I must warn you, however, not to over-estimate this influence. Clay-pipes are daily enjoyed by millions, whose lips yet remain unvisited by cancer. Many a hand is rasped with gravel, many a scrotum grimed with soot, many a cheek leant against brazen eye-pieces, many a tongue torn by teeth, many an outlet filthy with excretions: the permanent evil strikes but an inconsiderable fraction of these. It strikes only those who already possess *the constitutional conditions* for cancerous development.

The practical consideration is this: we find that circumstances of prolonged topical irritation and over-action will enable cancer to localize itself under a less intensity of those constitutional conditions than would else have been necessary to originate the process; and we believe that, except for such local facility being afforded to it, the cachexia might have remained latent; that, for instance, a chimney-sweeper, except for the local irritation of soot, would not have had cancer developed in his scrotum, and might not have had it developed at all. Therefore, in estimating the advantage of an operation, and the prospect of ultimate cure, in respect of cutaneous cancer, we may generally assume with confidence that it represents a comparatively low intensity of the constitutional disease, and that a liability to relapse after operation is consequently less than in those forms of cancer which arise independently of local provocation.

And the anatomical investigation of these cancers leads to the same practical result, because it likewise suggests a comparative mildness in the constitutional disease. For, as I have explained to you, it is in this form of cancer that the development of true cancer-growth appears to be at its minimum; it is in this form that the bulk of the morbid mass consists of elements seemingly not foreign to the normal structure of the part; it is in this form that cancer most nearly ceases to be what is called *heteromorphous*, and is least remote from the signification of a simple hypertrophy.

Therefore, I repeat, in this form of the disease—provided you are confident of the non-existence of secondary deposits—you may undertake operations of greater magnitude than would be expedient in dealing with scirrhus or encephaloid. Within the last year or so you have seen this opinion practically illustrated in at least two of my cases. One was of a man, thirty-eight years old, who had an unusually large mass of well-marked epithelial cancer at the anus. It formed a large, hardened, elevated sore, with everted warty edges, reaching from the middle of the perinæum over the coccyx, and overlying the anus on both sides. It lay particularly on the left side, where it extended over the tuberosity of the ischium to a distance of three or four inches from the margin of the anus; though very thick, it was moveable over the deeper parts. For very many years he had had something wrong at his fundament, which he believed to be piles. During the last year there had been considerable increase and frequent hæmorrhage. After careful inquiry into the state of the man's health, and examination of the groins, abdomen, pelvis, and rectum, in none of which could I find any trace of disease, I determined on removing the growth, together with the aperture of the anus which it surrounded. This I effected (Dec. 14th, 1850,) leaving the sphincter ani little injured. The cavity left by the retraction of the bowel upwards, and of the integument on all sides, was of course immense; but I drew down the intestine with ligatures, and stitched it at several points to the nearest integument, so as to reproduce an efficient anus. Although there was too much tension for this to succeed immediately to the full extent, yet granulations rose abundantly in the interval, and cicatrization was completed satisfactorily in about two months. Care was taken to prevent contraction of the orifice, and he was recommended to have a bougie passed at intervals. He retained perfect command of the sphincter, and recently, when I heard of him, was in quite good health.

Another case which you will remember was that in which, five or six months ago, I removed by disarticulation the right half of the lower jaw, for a man forty-five years of age. Here there was soft warty growth (which furnished profuse hæmorrhage) reaching from the symphysis of the jaw to the base of the coronoid process. It descended on the outward surface of the bone so low that only the basial margin could be felt free; it bulged the cheek considerably, and, by its inward extension occupied the cavity of the mouth as far as the middle line. I could not ascertain the history of it quite to my own satisfaction; but it seemed that six months previously there could have been very little, if any visible growth. Toothache formed so large a part of the record, that I suspect the disease must have begun in the alveoli of the jaw. The growth was unquestionable epithelial cancer. Hæmorrhage and interference with deglutition were rapidly exhausting the man, and I doubted whether, without removal of the disease, he could possibly live three months. Accordingly I operated, and regard being had to the nature of the disease, I thought it more prudent (as it was also easier) to disarticulate the bone than to leave perhaps an inch of the ramus, which could have turned to no useful purpose. The patient recovered, as you can recollect, with no bad symptom, and left the hospital with his health decidedly improved.

Now, my object, in reminding you of these two cases, is to illustrate that, for epithelial cancer, I

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cancroid sore. The patient was a captain in the navy. and in his time had used the telescope enough; but for some years he had not been on active service, so that no stress could be reasonably laid on the influence of metallic friction. As the sore had been creeping on for a year or two, I recommended its removal, and accordingly performed the operation. The wound healed in a fortnight. On subsequent examination, I found that the thickened margin of the sore consisted entirely of hypertrophied papillæ; each papilla expanded from its natural base into a bulbous end, many times larger than normal, marked on its surface and in its substance with innumerable nuclei. The peduncles of these mushroom-like growths were so small in proportion to their expanded ends, that the latter might easily have been mistaken for separate spheroid formations. There was no overgrowth of cuticle. The surface of the sore showed almost shapeless detritus.

do not object to operations of considerable severity. If, in either of these cases, the form of disease had been encephaloid, an operation would have been inadmissible. When this latter disease has advanced to a state that occasions visible fungus and recurrent hæmorrhage, other organs—either lymph-glands or viscera—are nearly sure to be the seat of secondary deposits; but the epithelial cancer, (if it happen to be soft and vascular) may take to hæmorrhage at a very early stage of its growth, without this symptom having so serious an import as in other forms of malignant disease. It is important, therefore, on all grounds, that you should distinguish, in any such case as that last spoken of, between the bleeding and desquamating surface of epithelial cancer, and that last stage of encephaloid disease, in which its solid cancerous fungus is the source of hæmorrhage.

In both the cases referred to, I considered the prospect of ultimate advantge to the patients sufficiently good to outbalance the risk of a severe surgical operation; I considered from the pathological affinities of each case, that the constitutional tendency to cancer, could not be of extreme strength, and that accordingly, if I removed the existing masses of disease, a long period—perhaps even the remaining years of life, might elapse without the cachexia having sufficient intensity to reproduce them anew. With an encephaloid tumour, that in a few months had reached considerable size, had protruded a great fungus surface, and had begun to exhaust a patient by hæmorrhage, I could scarcely consider myself justified in recommending so large an operation as removal of the jaw, or the destruction of so much integument, as it would take many weeks of healthy granulation to repair.

But epithelial cancers furnish in no respect whatever an exception to the rule of refraining to operate, whenever secondary deposits exist. On the contrary, in this form of disease the contaminated lymph-glands generally carry on the morbid process more actively than the cutaneous surface; and it is commonly by their extended fungation that life is eventually exhausted.

This is equally true, whether the original growth have been left or have been removed. In the former, case, the secondary disease often seems to outstrip, and, as it were, to supplant the primary disease.

You will remember an illustration of this in the case of a man, aged fifty-two, who died in Abraham's ward last autumn. At the beginning of the year, he had observed a little sore beneath the prepuce, soon followed by enlargement of the inguinal glands. He applied to me under the notion that he had chancre and burboes. He had a warty surface of epithelial cancer, as large as a shilling, situated at the corona glandis, and in each groin a lump as big as one's fist. Of course any operation was quite out of the question. The primary sore underwent little extension; but the masses of glands became still larger; that on the left side sloughed extensively, and as the large chasm thus made rapidly extended itself, he sank and died.

Some of you may likewise remember another case in the same ward, which occurred two years ago. A man, aged fifty-five, was admitted on the 29th of Jan., 1850, having on the left side of his neck a very large glandular tumour, excavated by cancerous ulceration, fungating at its edges, and discharging immensely day by day. The extension of this process terminated his life two months afterwards. On careful inquiry as to his history, I found that the glandular tumour in his neck had been preceded by a small suspicious sore on his tongue. Probably this was epithelial cancer. It had disappeared under the employment of some escharotic application, and had almost escaped his recollection at the time when he came under my care.

At the end of 1850, a woman, aged sixty, was under my charge, in Clinical ward, having on her cheek an epithelial ulcer as large as a crown-piece. The disease was peculiar, for it had probably originated in the likeness of a follicular tumour. Her sufferings with it were so extremely severe, apparently from its involving filaments of the fifth nerve, that, after three or four months' delay, during which I was quite unable to relieve her, I thought an operation admissible, although I could not speak confidently of the condition of her submaxillary lymph-glands. I accordingly excised the patch of skin, and the wound healed favourably. But almost as soon as its cicatrization was complete, the submaxillary glands began to swell more decidedly, rapidly obtained a very noticeable size, soon softened, and formed a cancerous ulcer beneath the jaw, with which she at length died. Evidently the operation had been quite unavailing: though it added nothing to the woman's sufferings, it certainly did little to mitigate them.

I have now stated to you the general principles which chiefly guide me in determining the admissibility of cancer-extirpations, and which, as you will have observed, resolve themselves into a full recognition of the constitutional origin of the disease, and an endeavour to determine, from the circumstances of the particular case, whether that constitutional influence be vigorous or feeble. It seems scarcely requisite to add, that careful regard must be had (as in every question of surgical operation) to the general condition of your patient's health, and that you would refrain from attempting any considerable mutilation for a person either very far advanced in years, or exhausted in constitution, or affected with other serious disease. In a case, to which I have already adverted, of desquamating cancerous ulcer on the shin, you will remember that I refrained from operating. The patient was seventy-one years old, and far from strong; the disease could have been effectually removed only by amputation of the leg; and I thought this operation quite inadmissible under her circumstances of age and health.

Extreme pain and proximate risk to life are the conditions of a positive kind which, most of all, warrant an operation. They would of course be strong reasons for advocating such a measure in cases otherwise favourable—in cases, for instance, where a growth, either very gradual or of the desquamating kind, had been attended by no secondary formations, by no tuberculization of skin, by no impairment of health; and within certain limits they would sometimes lead us to operate under less favourable circumstances. I have already, in the course of my lecture, adverted to one or two possibilities of this kind. But, on the whole, I think them rare; and, so far as my own experience and observation have gone, I find few instances of cancer (barring those of the desquamative kind) in which I can confidently promise my patient that an operation will relieve him from suffering, or will improve his chances of life. In all other than the desquamative form of cancer, I am therefore strongly inclined to look upon severe surgical operations as measures only for exceptional adoption.

With respect to the age of a cancerous growth at which it is most desirable to operate, we have not sufficient materials for a perfect judgment. There is a strong popular impression in favour of early extirpations, but I must say that this impression seems to me to have been hastily formed, and that it cannot be received without qualification. In the epithelial form of the disease, indeed, I do think it desirable to operate so soon as I am satisfied as to the nature of the growth, partly because of the greater degree in which it may be considered a local disease, partly because of the marked difference in its course which is made by any contamination of the lymphatics—an evil which delay would render more probable; but in the other sorts of cancer I am by no means equally persuaded of the advantages generally ascribed to early operations. It would require very copious statistics, which we do not yet possess, to speak with certainty on the point. I will only venture to say that I entertain grave doubts as to the practical expediency of extirpating solid cancerous tumours in early stages of their progress, and that some of the quickest and most fatal relapses which I have witnessed have been in cases thus operated on. My impression, both from pathology and practice, is rather that, for a majority of cases, one might best economize the life of one's patient by deferring the operation till special circumstances (extreme pain or impending ulceration) should make it imperative: thus suffering the constitutional disease to exhaust itself as far as possible in the organ which one meditates removing. The peculiarities of each individual case may justify differences of practice in this respect, and the contrarieties of opinion which now prevail may be reconciled as knowledge increases, for it is a branch of the subject, I repeat, in which our profession hitherto possesses but imperfect materials for judgment.

Finally, gentlemen, turning from these general considerations to the particular instance which has suggested them, I must tell you the history of the man on whom I have presently to operate, and give you the rather exceptional reasons which in his case determine my recourse to the knife.

This patient—an out-door labourer, aged forty-five—has had enlargement of the right testis for at least two years. The growth has been considerable, for while the healthy testis is below the average in size, the diseased one equals a very large Guernsey pear. About half of this bulk is thought to have grown during the last year. The morbid formation extends along the spermatic cord, within the external abdominal ring; it terminates abruptly about the middle of the inguinal canal, so that one can quite certainly get beyond it, and feel an inch or more of healthy cord. This portion of the disease has been developed within the last few weeks. The tumour is opaque and heavy; in the outline it is regularly oval; it is very firm, not quite unyielding, but with no trace of fluctuation at any part; it is not in any degree tender on pressure; it is not, nor has it ever been, the seat of pain. Dragging discomfort in the loins is alone complained of, and this ceases in the recumbent position. The man's appearance is strikingly good—firm, sinewy, active, and cheerful. He has never suffered from any serious ailment, and, on careful examination, he now appears perfectly sound, with the exception of the one organ. Not a trace of tumour can be discovered within the abdomen or pelvis.

I have not hesitated much as to the diagnosis, for there are few possibilities to choose between. The unquestionable solidity of the growth excludes the thought of its being a cystic tumour, which of course would fluctuate more or less distinctly. Still less, in the additional absence of transparency, could it be taken for a hydrocele. Its gradual progress for two years could not have belonged to a hæmatocele. Tubercle would probably not have reached the same bulk, or had the same duration, without undergoing liquefaction; or, if solid, would present, especially behind, an irregular knobbiness of surface. Chronic inflammation might, indeed, have produced physical characters not very different from these presented here; but in the history of a chronic inflammation there would have been some mention of pain; and a testicle so largely increased by that process would not be without tenderness on pressure. These reasons would determine me against thinking the disease of inflammatory origin; and other circumstances of less importance contribute to strengthen this opinion. In size, the tumour is beyond the size of chronic orchitis. In shape, it is more uniformly oval—less compressed from side to side than an inflamed testis (unless with serous effusion in the *tunica vaginalis*) is apt to be. The absence of fluid in itself contributes some evidence, for the testicle is rarely enlarged by inflammation without the serous sac likewise containing liquid exudation. Nor is it unimportant to notice that the left testis is quite sound—its epididymis without a vestige of thickening—a condition which would hardly exist if chronic inflammation had been so long active in the other, and had produced this considerable enlargement.

Accordingly I find little reason to doubt that the disease is carcinomatous, having probably the anatomical character of encephaloid.[*]

But, side by side with this conclusion, it is of the utmost practical importance to notice how gradually the growth has proceeded. Herein, as I have shown you, lie one's means for determining to what extent the man's system is possessed by the cachexia of cancerous development: and herein, accordingly, is our index how far, in his particular case, removal of the tumour may tend to prolong life.

You have seen, as I discussed with you the general question of cancer-operations, how very rarely I should be induced to recommend the performance of castration for encephaloid disease of the testicle—how very rarely I should be induced to prognosticate favourably of such an operation. The rapidity—great even for encephaloid cancer—with which the disease usually evolves itself in this organ, and the ordinary concurrence of secondary deposits in the abdomen, almost invariably show that no such mutilation can be serviceable.

But with our present case, the conditions, in these respects, are sufficiently exceptional to warrant exceptional treatment; and, on full consideration, I have not thought myself justified in withholding from the man such chance of good as is proffered by the removal of his tumour. The local disease has existed at least two years, so that its growth, considering the organ affected, has been remarkably indolent: notwithstanding this duration of disease, the man's general health seems quite unimpaired, and I cannot discover any trace of secondary deposit. Regard being had to all these circumstances, his constitutional tendency to reproduce the disease cannot but be estimated as of low intensity. It may therefore be reasonably expected that the removal of the morbid growth will make a very sensible difference in its favour. And the risk of the operation, carefully performed, on a man of his habit, at this time of the year, is not great: it is not too high a price to pay for the advantage which is likely to be conferred. He will be relieved from the uneasiness of his heavy tumour; he will be able to resume his employment; and, unless he already has secondary deposits within his body (a condition which, after careful inquiry, I believe to be absent.) he may possibly have some years of comfortable life. I may mention, too, that I conceive it a fortunate incident in the man's history, since not counterbalanced by the evil of any secondary deposit, that the disease has gone on so long as to have spent much of its formative energy in this primary construction. Its local extent is such as to leave it still quite removable; and it has had the longest run compatible with this condition. Any further duration would probably (by increased affection of the cord) make it irremovable. This is accordingly just the moment at which, in any similar case, I would elect to operate.

The only other instance of malignant disease at present in my wards (beside that just adverted to) is in Clinical ward—a woman, aged sixty, admitted Dec. 23, with scirrhus of the left mamma. The tumour is a hard, flat mass, about two inches across. It adheres to the skin about the areola; otherwise it is free, both superficially and deeply, and quite movable. Here and there may be felt a separate tubercle in the cellular tissue. A cord runs to the axilla, where there is a knot of glands, hard as marble. Just above the clavicle there is a very small, but very hard lump. The general appearance of the patient is sallow and shrivelled. Her complaints of pain are chiefly in reference to the axilla, and to the ribs of the opposite side. About a year ago the tumour was first noticed, and is said to have had at that time the dimensions of a walnut. Since her admission to the hospital, ulceration (which was then just commencing) has advanced very slowly and superficially: it has amputated the nipple, which till then had remained prominent.

Any operation in this case would, of course, be out of the question; even the local disease could be but imperfectly removed by the knife; and the progress of the primary deposit in the breast (which alone could be cut away) is likely to be so gradual as to form scarcely the most important part of her suffering. During her stay with us I have been giving her, with marked advantage, liberal doses of the tincture of hemlock. I have no reason for ascribing to this medicine the specific power against cancer which was formerly claimed for it; but it is of unquestionable use as a sedative, and you cannot have failed to notice how, at each period when this patient's pain has been aggravated, immediate though temporary relief has been given by an increased dose of conium. The extract of belladonna, locally applied, has been of less service to her.

I mentioned to you that her nipple was not retracted at the time of her admission. That symptom cannot be considered of importance, either affirmatively or negatively, with respect to the diagnosis of scirrhus in the breast. Two days since, I saw a good illustration of this fact. I was consulted, by a lady having very advanced scirrhus in the left breast, with brawny skin, large glands in the axilla, and œdematous hand. On this side the nipple was prominent. On the opposite breast, where there was not a trace of cancerous deposit, and where all was apparently healthy, the nipple was so completely retracted, that there was a navel-like depression in its place.

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[*] After removal of the organ, this diagnosis was verified. The section of the tumour was in parts quite brain-like, variegated with small masses of a firmer, bright-yellow material, in which there was abundance of fat. The microscopical elements throughout were those of cell-growth, with large and distinct nuclei. The normal structure of the gland was quite lost. The operation was performed in the usual way, under the influence of chloroform: an ellipse of skin was removed with the tumour, the cord being divided close to the internal abdominal ring, where it appeared perfectly free from disease. The after progress of the case was satisfactory, and the man left the hospital in good condition, the wound having cicatrized within four weeks of the castration. This lecture was delivered on the 13th of March.

A REMARKABLE CASE OF HIRSUTE GROWTH IN A FEMALE;

WITH OBSERVATIONS ON CERTAIN ORGANIC STRUCTURES AND THEIR PHYSIOLOGICAL INFLUENCES.

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(Concluded from July No., p. 47.)

Pathological Hirsute Growth.—Examples in which the growth of hair on different parts of the body has appeared to be the consequence of disease, are extremely rare; yet such growths do occur. They have been attributed to general disturbance of the health, and to local disease. M. Bricheteau, for example, has given the following case, from his own experience, of a young woman. who, after suffering from gastro-entérite, had a profuse growth of hair on her body and limbs:—

"Une jeune dame, ayant la peau très-blanche et les cheveux d'un noir foncé, convalescente depuis quelque temps d'une gastro-entérite chronique, s'aperçut un jour, que toute la surface de la peau, au tronc et aux membres, était herissée d'une multitude de petites élevures, très-analogues à celles qui se manifestent par l'impression du froid. Au bout de quelques jours, ces petites saillies parurent colorées, et l'on ne tarda pas à remarquer à leur sommet un poil qui, d'abord très-court, s'accrut rapidement, et de telle sorte qu'en un mois toute la surface du corps et des membres, a l'exception des mains et de la face, fut entièrement velue. Ce développement accidentel de poils est d'autant plus remarquable, que la production des bulbes pilifères a eu lieu ainsi simultanément dans toute l'étendue de la peau; ces poils ont un pouce au moins de longueur, ils sont noirs et très-rapprochés les uns des autres."[*]

Of the growth of hair as a consequence of local disease, the case of M. Boyer might be cited as an example, in which it appeared to be the consequence of an inflammatory tumour:—

"Un malade qui, ayant été affecté d'une tumeur inflammatoire de la cuisse. vit cette partie se couvrir en assez peu de temps de poils longs et nombreux, tandis qu'elle en était dépourvue auparavant.[†]

I saw, some years since, a young woman, who, in consequence of a chronic pain in the forearm, was using a strong stimulating liniment, which she applied with friction, and she had a very considerable quantity of hair upon the part where the liniment was applied—viz. on the outer or dorsal surface of the forearm. Whether this was a consequence of the disease, or of the application, or of neither, is necessarily uncertain. That she was using the liniment, however, and that she had a crop of hair on the parts where it was applied, I had an opportunity of knowing. She *stated* that the growth was new, and did not exist prior to the use of the liniment; but of that I have not any knowledge. With regard, however, to the belief that A. B., the wife of Vaubeck, either procured or improved the growth of hair on her face and body, it is one in which I do not participate; yet that pathological conditions, or the application of stimulants, *may possibly* promote the growth of hair, is within the scope of belief, since the skin everywhere, except on the palms of the hands and the soles of the feet, has the organization necessary, and on almost every part hairs more or less minute exist.

Hirsute Growths Masculine in their Character.—Amongst those instances of hirsute growths which are especially masculine in their character from the site they occupy, some are the result of precocity only, as in male infants, and as in the case of the "Great Boy," for example, who, prior to the eighth year of his age, had the whiskers of a man; and these indications are for the most part accompanied by other signs of precocity. Moreover, they are less remarkable, being growths in *accordance* with an organization which is presumed to exist, as the rudimentary beginning of a final intention, and indeed are but the immediate, instead of the deferred accomplishment of a natural sequence; a mere anticipation of a natural production. Occasionally, the growth of hair is not only precocious, but excessive as regards the extent over which it spreads, exceeding what might be called its natural, because its more usual limits. Such a case is cited in the *Dictionnaire des Sciences Médicales* (vol. xliii, p. 509:)—"Bichat a vu un homme de plus de trente-six ans, qui avait, depuit sa naissance, le visage couvert de poils."

In instances, however, where a *female* child (as was the case with J. B——) is born with hirsute cheeks and chin, not only unnatural as regards time, but unnatural as regards the sex, the fact is one of more curious interest.

Masculine Growth of Hair in after-life.—Masculine abnormal growths of hair in after-life, as beard, whiskers, &c., are common consequences of that complex condition, in which some portion or portions of the primary special organization, both male and female, co-exist in the same individual; a common consequence of such co-existence also is, that the other secondary peculiarities are strongly affected, and are, indeed, of mixed types.

No Example in the Human Subject of Complete Duplex Organization of Male and Female.—These duplex, or rather complex organizations, however, constitute but an abnormal *approach* towards the really double formation, which in some of the lowest species of animals is complete;[*] for to the simple co-existence in the same individual of SOME distinctive male, and some distinctive female organizations, nature has in the human subject limited that approach, so far at least as we know of; hence the appellation androganous where the masculine, and gynandrous where the feminine type predominates. Neither, where organizations of both types exist, are both in a normal state.

Malformation without Complexity of Sex.—There is, however, another condition of the system which is not followed by so seemingly obvious a consequence, but by results apparently much less to be expected. In instances where there is not *any* aberration as regards identity and individuality or singleness of sex—where, for example, mere *malformation* of the characteristic primary organs is the peculiarity, the secondary characteristics are not merely commonly, but generally composite or duplex, and this occurs whether the subject of the malformation is male or female.

Malformations in which Males were supposed to be Females.—The man, John B——, who was twice my patient in this hospital, and whose case was published in THE LANCET, was first admitted as Elizabeth B——, age twenty-four. He was the subject of malformation at birth, and had from his childhood worn the dress of a female. He had been considered by his neighbours as of that sex, and as a female associated with them. His features had the general characteristics of the female, and he had but little beard or whiskers. This man, although he had malformation to a great degree, had no peculiarity of really equivocal character,[*] that is to say, that could be deemed by an anatomist to be equivocal. He was re-admitted into the Charing-cross Hospital, as John B——, some time after, labouring under pneumonia, of which disease he died. Dissection, minutely and carefully made by Mr. Edwin Canton, left no shadow of doubt that his sex was distinct, both internally and externally, notwithstanding the blending of a general appearance of effeminacy in his features, with masculine although scanty beard and whiskers.

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[*] Dictionnaire de Médecine, vol. xvii., art. Poil, p. 261.

[†] Dictionnaire des Sciences Médicales, tom. xliii., art. Poils, p. 509.

[*] "C'est-à-dire à la réunion complète et parfaite des organes génitaux des deux sexes dans un même individu, soit avec la faculté d'engendrer seul en se fécondant lui-même, comme les mollusques acéphales, soit avec la faculté de féconder et d'être fécondés. . . . . comme les mollusques gasteropodes. . . . . dont il n'existe aucun exemple convenablement constaté."—*Bulletin de la Faculte de Medecine de Paris*, tom. iv., 1814, No. 1, 1815, p. 282

Dr. Bailie[*] cites the case of a person who had been under the observation of Dr. Storer, of Nottingham, and by whom he (Dr. Bailie) was made acquainted with the case. He says, "the person bears the name of a woman, and wears the apparel of a woman. She has a remarkably masculine look, with plain features, but no beard." . . . . "At this time she was twenty-four years of age, and had not been sensible of any bad health, but only came to the hospital to comply with the wishes of her mistress.[†] The mammæ resembled those of a woman. The person had no partiality whatever for either sex."

Dr. Bailie supposed this to be an instance of mixed sex, but it is considered by later authors to constitute an example of malformed male.

In this case the malformation appears to have had a peculiarly strong influence over the secondary characteristics; the growth of beard was eschewed, although there was a "remarkably masculine look," and the growth of the mammæ was promoted.

The case of Adelaide Préville[‡] constituted also a case of malformation (a mere malformed male,) although living for some years as a wife. "She" was admitted into the Hôtel Dieu at Paris, suffering under a thoracic affection, of which "she" died.[§] The form of the body, and other secondary peculiarities, presented very striking contrasts. A beard, a short, thick neck, an ample chest, and only slightly prominent breasts, having some hairs upon them, gave to the body a strikingly masculine aspect. The other parts of the person, on the contrary, presented secondary peculiarities, and appearances not less strikingly feminine.[‖] A fact stated, however, by M. Giraud, to the effect that there were normal catamenial periods, is, if correct, amongst the most remarkable circumstances of the case,—so remarkable, indeed, that to doubt either the vigilance of the medical attendants or the veracity of the object of the anomaly, appears to be at least excusable.[¶]

Otto[**] describes a person who married a third husband, and whose case came, as a subject of forensic inquiry, before the members of the Royal Medical College of Silesia. They confirmed the plea, that the person was a male.

The general configuration of the individual was strong, muscular, and meagre, the beard was thin and soft, the face, mammæ, thorax, pelvis, and extremities masculine. In this instance, the growth of beard appears to have been retarded, and notwithstanding the general male primary characteristics, was thin and soft.

Malformations in which Females were supposed to be Males.—In cases the converse of that of John B——, where, for example, the patient is female, but the subject of simple malformation of the primary peculiarities of sex, and totally without complexity as regards male and female, the general or secondary peculiarities partake of the masculine type. As in his case, and, indeed, in the other cases of malformed males cited above, feminine general characteristics were mingled with those of the masculine; so, in the case of any female, the subject of malformed primary organization, one or more of the masculine secondary characteristics, as unfeminine expression of face, unfeminine gait and manner, deficiency of the general feminine contour of figure, larger larynx and pomum Adami, with deeper, fuller voice, smaller breasts, and more or less beard, may be expected as almost constant concomitants.

The instance of a woman called Gally, (quoted from Arnaud, l. c. p. 309,) by Dr. Todd,[*] is an instance. She had been married, but never had children. She was the subject of malformation, but still during life was deemed to be, and by anatomical investigation after death proved to be, strictly and singly female, yet "she had a considerable quantity of hair upon her face, and her voice was hard and masculine."

The case of Marie-Madeleine Lefort, aged sixteen years, recorded by M. Beclard, (and cited in the Cyclopædia of Anatomy and Physiology, vol. ii. p. 689,) presents a very illustrative instance of strikingly-marked masculine secondary peculiarities, existing in the entire absence of masculine primary organization, and apparently as the consequence of mere malformation in those of the female.

"Le thorax est ovoïde, alongé; les épaules sont délicates, ainsi que les membres supérieurs; . . . . le bassin est court; . . . . le col est grêle; le larynx et la voix sont comme ceux d'un homme adolescent; les mamelles sont developpées, d'un volume moyen, surmontées d'un mamelon érectile dont l'aréole, d'une couleur brune, est garnie de quelques poils. La lèvre supérieure, le menton, et la region parotidienne, sont couverts de barbe brune naissante; les membres inférieurs sont couverts de poils longs, nombreux, bruns et rudes; les cuisses sont arrondies; le genoux inclinés en dedans; le pieds sont petits."[†]

Thus in the case of Marie-Madeleine Lefort, we perceive, mingled with many of the secondary peculiarities proper to her real sex, several which are characteristic of the male; the neck, larynx, and voice resemble those of a man; the areolæ of the breasts were furnished with hair; a beard of dark colour, (brown) was growing on the usual parts of the face, and long hairs also covered the inferior extremities. Cases of this kind have been considered to constitute a class of hermaphrodites, called "spurious," in contradistinction to "true." But it appears to be scarcely correct to call them other than that which they really are—viz., malformations. Where a complication of male and female organization really exists, the distinctions spurious and true would seem to be more appropriate, as designating the irregular co-existence of some incongruous parts on the one hand, or a perfect co-existence, such as appertains to certain of the lower class of animal life on the other; in which case, so far as is at present known, all, in the human subject, would belong to the imperfect class; these, however may still retain the subdistinctions, *Lateral* and *Transverse*.

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[*] Bailie's Morbid Anatomy, second edition, p. 410, and Cyclop. of Anatomy and Physiology, vol. ii, p. 693.

[†] Nunquam menstrua habuit.

[‡] Recueil Périodique de la Société de Médecine de Paris, p. 315; and Cyclop. of Anatomy and Physiology, vol. ii. p. 693.

[§] M. Giraud says,—"J'appris qu'elle étoit native du Cap Français et qu'elle habitoit la France depuis dix ans; qu'elle avoit toujours passé pour femme; qu'elle vivoit en bonne intelligence avec un homme qu'elle avoit epousé."—*Recueil Periodique de la Societe de Médecine de Paris*, tom ii. p. 318.

[‖] "Des poils forts et multipliés couvroient le menton et les lèvres; un col court et gros, une poitrine ample, des mamelons peu saillans et entourés de poils, donnoient à une partie du corp de Préville, un aspect masculin.

"L'autre partie, au contraire, presentoit les signes du sexe feminin, tels que l'évasement du bassin, l'écartement des cuisses, la grosseur des fesses, les formes des membres plus grêles et plus delicates."—*Ibid*, p. 315.

[¶] The narration proceeds to say,—"Qu'elle étoit parfaitement réglée: que même, elle avoit eu ses règles pendant son séjour à l'Hôtel Dieu."—*Ibid.*, tom ii. p. 319.

[**] Cyclop of Anatomy and Physiology vol. ii. p. 693. and Neue Seltene Beobachtungen zur Anatomie, &c., p. 123.

[*] Cyclop. of Anatomy and Physiology, vol ii. p. 688.

[†] Bulletin de la Société de Médecine, 1815, No. 2, tom ii. p. 278.

A suitable division appears to be—

1st. Displacement, as prolapsus.
2nd. Malformation.
3rd. Hermaphroditism, incomplete, } lateral or
4th. complete. } transverse.

Reverting to the subject of the powerful influences exercised over the secondary indications of sex by absolute malformation of the primary, it might be stated, that the secondary indications are not similarly affected where there is displacement, merely, as in cases of prolapsus uteri, in which the sex has been mistaken.

Duplex Structure Doubtful.—M. Armand[*] published a case in which the subject of the malformation, aged thirty-five, passed in society for a female. The opportunity that was offered of ascertaining with certainty the true structure after death, was uniformly lost through carelessness. The conformation of this individual's person was remarkable. Her skin was rough, thick, and swarthy, her voice coarse and masculine; her chest narrow; her mammæ flat and small; her arm lean and masculine; her hand large, and her fingers of very considerable length and strength. The form, in fact, of the upper part of her body was masculine, but in the lower part the female conformation preponderated. The pelvis was wide and large; the os pubis very elevated, the thighs and legs round, and the feet small.

It is further recorded that this person had a soft black beard on the face.

The case of Maria Nonza, as detailed by Julien and Soules,[†] a person who lived as a woman to the time of her death, and in ignorance of her true sex, but in whose case post-mortem examination seems not to have been conducted carefully, is still supposed to be an example of a malformed male.

Whether it was really so, or whether any complexity of primary organization existed or not, still the secondary characteristic peculiarities were influenced in a very conspicuous degree.

The character and appearance of the person was masculine, but the visage was beardless; the breasts as largely developed as in the adult woman, the nipples, however, were surrounded by hair.

I cannot refrain from expressing a degree of disappointment at perceiving that which I conceive might be to others, as it has been occasionally to myself, in referring to the records of cases such as those now cited, cause for a degree of doubt as to accuracy in some of the details; and it is unnecessary to say, that precision and exactness, even in matters the most minute, are necessary in a question which is one of facts.

I may cite a case to which this observation, as it appears to me, applies, and the special detail to which I would apply it describes in the French language "*les bourses*." It appears to me that the parts described are anatomically and absolutely not "*les bourses*," but in fact the structures to which the described parts are said to be "*semblable*."[‡] It is the case of "Valmont," a hatter, who died of cholera in one of the Paris hospitals. There was obviously a uterus, and two ovaries, similar in form and structure, according to M. Mance, to those of a girl fifteen or sixteen years of age, or, to adopt the language of M. Bouilland's statement,[*] two bodies *in some sort* fibrous, and *perhaps* intermediate in their structure," (intermediate between ovaries and their analogues in the male.) "In this individual the stature was short, the mammary glands and nipples were well developed;. . . the general physiognomy was delicate; the body fat; the hands and feet very small; the pelvis shallow, and the haunches wider than in a well-formed man; the face was bearded."

Lateral Duplex Structure.—M. Sue met, in 1746, with an instance in a young person thirteen or fourteen years of age, whose case was the subject of a thesis sustained by M. Morand in Paris, in 1749. During life this person was looked upon as belonging to the male sex,[†] although her claims, anatomically considered, were stronger to that of the female.

In 1754, a young person of about eighteen years of age, died in the Hôtel Dieu of Paris, in whom the balance of structure preponderated still more to the female, although she was regarded during life as a male.[‡]

The case of Hubert Jean Pierre, originally published by Maret in the *Memoirs of the Academy of Dijon*, (tom. ii. p. 157,) and subsequently adverted to by many authors,[§] had been regarded as one which there was "an obvious, and nearly an equal, commixture of the organs of each sex." This person had also, during life, been considered as a male. The secondary pecularities of sex in this person are clearly described, and illustrate the physiological influence of organization, or rather the influences of conflicting organizations. Hubert Jean Pierrie "was passionately fond of dancing, but was never known to exhibit any fondness for females, or to indulge in caresses with the young women of his acquaintance. The larynx was not large as in man; and the breasts, each of which was furnished with a very large areola, were of a moderate size and roundish form.

"The configuration of the lower part of the body was more decidedly masculine, and there was none of that enlargement of the hips and projection of the thighs, from the increased width of the pelvis, which are observable in young females."

In this person, the actual existence of conflicting primary organic influences was physiologically remarkably responded to the secondary characteristics. Amongst other effects, the countenance was more delicate than we ordinarily see it in the male, and there was no beard on the face.

Although it must not be overlooked that this person had not attained that full age, when the bodily form usually acquires the full completeness of its characteristic mould and shape, whether in male or female, yet that the age was sufficiently advanced for some of the indications of physiological influence to have been effected, is evidenced in the fulness of the mammæ and largeness of the areola.

It is worthy of remark, also, that where even simple or mere malformation exists in a person strictly female, the appearance of some beard is generally an early concomitant; yet, in this instance, although *not* wholly female, there was not any beard.

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[*] Dissertation sur les Hermaphrodites, p. 265, and Cyclop. of Anatomy and Physiology, vol. ii., p. 689.

[†] Cyclop. of Anatomy and Physiology, vol. ii., p. 694.

[‡] Les bourses sont petites, mais d'ailleurs très reconnaissable les tègumentes qui en forment la partie essentielle offrent la couleur brune et le froncement qui existent a l'état normal, et sont ombragès de poils; elles sont devisèes en deux parties symétriques, par un raphé qui s'étend du prèpuce à l'anus, et qui paraît un peu plus dur et plus saillant qu'on ne le rencontre chez l'homme. Les bourses sont dépourvues de testiculus; on n'y rencontre aucunes vestiges de ces organes. Elles ne contiennent qu'un tissue cellulaire lamelleux, semblable à celui qu l'on trouve dans lépaisseur des nymphes." *Journal Hebdomadaire*, 1833, March, vol. x., p. 469.

"De même que les testicules, les vesicules seminales et les canaux deférénts manquent complètement. Il ne sort par l'anneau inguinal qu'un tissue cellulaire, dense, rudiment du ligament rond, un filet nerveux et une artère."—*Ibid*, vol x., p. 475.

[*] Cyclop, of Anatomy and Physiology, vol. ii. p. 705.

[†] Ibid. p. 698.

[‡] Ibid. p. 699.

[§] Dr. Cummins. London Medical Gazette, vol. xix., p 134. Cyclopedia of Anatomy and Physiology, vol. ii., p. 700. Davis's Obstetric Medicine, vol. i., p. 63.

Transverse Duplex Structure.—It is in the instances ' duplex organization belonging to the class called ansverse, so far as regards externals, that the nearest)proaches to the case of J. B—— are met with ; the ost similar, however, are still very different. Such case is cited by Steghlehner, and adduced as an :ample of that class in Dr. Todd's "Cyclopædia of natomy and Physiology," (vol. ii. p. 703.) The cternal primary organization was feminine and ormal, but the internal corresponding organs were anting. On the other hand, there was no semblance ' masculine primary external organization, but, in-rnally, organs undoubtedly masculine were found a dissection.

The person appears to have been of middle stature ; ie general appearance, contour, and figure, fair and eminine ;* the voice baritone, somewhat harsh, and pproaching to manly; the larynx projected more ıan is common ; the mammæ and papillæ, and their reolæ, were natural.†

The subject of these peculiarities appears to have een afflicted with frequent illness from her child-ood and during the remainder of her life, and in)me striking instances her maladies appear to have een pathological, results of corporal, and, secondarily, f physiological influences.‡ She died at the age of venty-three, (in the Hôtel Dieu at Paris,) of phthisis, ad, until her death, no suspicion existed that she 'as not in all respects female.

This case is exceedingly well marked, as relates oth to the external primary organization of female ype, and the co-existence internally of primary or-anization of the male type ; and the body after death ppears moreover to have been examined anatomically, nd the facts detailed with great care and exactness.§

No cause could be adduced by the mother for the anomaly ; she said she had never had better health during any pregnancy.

A case still more nearly approaching to an actually normal state of the respective primary organizations, of which some were of the male, and some of the female type, occurred in the person of Mario E. Arsano,* who passed through life as a female, had married as such, and died in one of the institutions of charity in Naples, at the age of eighty. In this instance, as in that detailed by Steghlehner, no suspicion of anomalous formation existed during life. The external characteristic organs were those of the female, strictly natural and normal. After death it was ascertained that there were not any corresponding internal organs, but that there were, on the contrary, those structures peculiar to the male, which, during the fœtal state, are retained within the abdomen, and which, although abnormally retained, were normal in their structure, essentially natural in their condition, and had their natural adjuncts..

"The head of this individual was of usual size, the neck long, and the stature ordinary. There were well-formed mammæ, yet the periphery of the thorax was so expanded as to almost equal that of the male."

The pelvis was altogether that of a male in its form and dimensions, and the limbs were perfectly masculine ; the voice was deep, and the temperament strong and firm, although the subject of "catamenial secretion."

The face, although entirely free from hair, had nevertheless neither the expression of a female nor of a male. It is stated that the mental character was feminine, but this is attributed to her "being constantly employed in domestic occupation ;" an explanation, however, which does not appear to have much force as applied to a person greatly advanced in years, and the subject of anomalies so influential. It will not escape notice that this person presents an unusual result as regards the total absence of beard, under circumstances in which the ovaries were *wanting*, and the usual physiological influence of these organs necessarily in abeyance, while their analogues of the opposite sex were present, and their physiological influence, judging from the figure, voice, &c., in operation.

These two last cases of lusus naturæ resemble very nearly in certain points that of J. B——, for example in the individuality, the situation, and the anatomical structure of the external organs, (the Neapolitan, however, the nearest ;) for what is said of that person, to the effect that they (the external organs) were in all particulars feminine and normal, might be quoted as applying with strict propriety to J. B—— ; here, however, similarity ends, and striking dissimilarities commence. An examination, made in the usual manner, left no doubt of the presence of a uterus ; the os and cervix distinctly perceptible, normal, and encircled naturally by the vaginal terminal extremity, (in the Neapolitan the terminal extremity was a cul-de-sac ;) and through these parts there was perceptible to the touch a body which gave the full impression of being the uterus. The existence, indeed, of a complete series of feminine organs is placed beyond doubt by her pregnancy.

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* Puella formosa, statura mediocri, corporis habitu procero et nœno.—Steghlehner, *De Hermaphroditorum Natura*, p. 120

† Viventi erat vox baritona, rauca quandoque et ad virilem ac-dens ; protuberabat solito magis in collo larynx ; ad pectus hærere amınæ perpulchræ, sorientes, areolæ et papillæ normales.—Ibid, 120.

‡ Ab infantiâ multis morbis infestata, nunquam menstrua habuit ıai sat regulariter molimina conaminaque orta fuerint ; et abhinc, a persæpe dolores cientes cruciatusque perpesserit ; dein chlorosis ii supervenit, vixque aliquo modo restitutam multis et variis medi-ıminibus longâque curâ ; mox peripneumonia a saltu ardenter nato repentinâque refrigeratione orta subsequebatur, quam 'mum phthisis, jam dispositam chlorosi necavit.

§ Thorax, hypochondria, abdomen, coxendices et genitalia externa eminam perfectam designavere. Mons veneris multo quidem lipe, cincinnis autem fere nullis, lanugine tantum, pubescentium odo obsitus ; labia majora regularia ; ligamentum interlabiorum, rinæum, noduli hæmorrhoidales circa anum ; nymphæ et clitoris ıas quidem normales, sed aliquando minores, regulare urethræ ificium, rima vulvalis sat parva naturali modo coarctatior, et ad midium clausa hymene paululum in margine serrato atque pertuso roque in latere foraminulo acus capiti accipiendo sufficiente. ossa navicularis optime expressa, vagina normaliter situata, rangustata perbrevisque ab hymene usque ad fundum suum cum longa dimidium pollicem, pollicisque diametrum metiens, gis plicisque gracilibus transversis, longitudinalibusque simul midis atque torosis obsita fuit. . . . Abdomine aperto pelvis vum sat amplum inveni, exitum autem nimis augustatum. Inter lvis organa amplitudine insuetâ insigniter excellit vesica urinaria, ıæ flaccida et urinis tumens in abdomen ascendebat ; totum ioque pelvis cavum implevit, evacuataque insigne volumen tinuit. Tunica muscularis fuit valde tenuis, sphincter autem fere ıturali robustior. Neque ovarium, neque uterum videre licuit, ıo vesicâ urinariâ sublatâ, cum inter et intestinum rectum nil texi, nisi sinum amplum a peritonæo formatum. Cum mihi ex teris plures uteri ovariorumque defectus historiæ cognitæ fuissent, m ab ulteriori perscrutatione me abstinere decrevi, suspiciens hoc dividuum eodem defectu solum laborâsse ; ast de improviso in tere sinistro mihi, aliquid ductui deferenti simile ad annulum guinalem tendens in conspectum venit. quo inductus fui regiones guinales accuratius explorare ; ibique attigi, me hercule, sane irum et inauditum ! testiculos in pulvinari adiposo insigni in-olutos. Statim auferenda abstuli, et in accuratiori disquisitione ab ınulo haud procul testiculos cum parastatis, tunicâ vaginali, mus-ılo cremastere et processu peritonæi vaginali ita circumdatos inveni, processus peritonæalis suo in transitu per annulum abdominalem ausus quidem, in ulteriori decursu autem iterum apertus appareret, sine septulo quodam testiculum et funiculum spermaticum simul ontineret. Tunicis testiculos ambientibus apertis, eos flaccidos, ıt parvos, nimium exiles uti in pueris ante pubertatem exstant, aspexi.

Structura didymidum æque ac illa epididymidum fuit regularis ; epididymide caput et ductuum deferentium. Gyrull clare distinguuntur ; uterque ductus deferens, etsi exiguus et gracilis, tamen apertus et setæ suillæ permeabilis, abdomen per annulum intrat, in pelvi inter peritonæi laminas ad vaginam descendens, post vesicam urinariam accipit ab utroque latere externo vesiculam seminalem haud dignoscendam, etsi minus crassam, unum tamen pollicem cum dimidio metientem, intus quoque cavam, et cellulis sacculisque munitam Quisque ductus deferens suâ cum vesiculâ correspondente in canaliculum seminalem sat amplum, semipollicem longum junctus, pone vesicæ urinariæ collum tandem cæco vaginæ exilis sinui implanatur, quin canaliculus hucusque apertus imo sat amplus ostio quodam in vaginam pateat. Vagina nunc in pariete anteriori aperta locus singulæ insertionis tantummodo sinu quodam, duabus plicis tumidis, longitudinalibus, rugarumque transversalium trajectu imbricatis, constituto designatur.—Steghlehner, *De Hermaphroditorum Natura*, p 120.

* Cyclop. of Anatomy and Physiology, vol. ii., p. 708. 4.

The visit to this hospital of which I have spoken was in September. I saw her on the 2nd, and on that day heard distinctly the pulsations of the fœtal heart. Mr. Alfred Harvey was present, to whom I transferred the stethoscope, and they were heard by him also. She was confined on the 26th of December, sixteen weeks and four days subsequently to the fœtal heart being heard. She nurses her child, a daughter, and has abundance of milk, her mammæ being even more than usually large. The child is fair, and without any peculiarity.

Taking the prominent facts again cursorily into view,—first the general feminine form, manner, and voice of the person; second, the special feminine structures; third, the normal state of the uterine functions from youth upward; fourth, the masculine quantity of hair on the general surface; fifth, the full and masculine beard and whiskers; sixth, the pregnancy and confinement; and seventh, the nursing and the abundant quantity of milk,—they constitute a series extremely remarkable, if not unique.

The prominent anomaly, then, in the case of J. B——, is the co-existence of anatomical structure and physiological phenomena so absolutely and entirely proper to the female, along with hirsute growths so thoroughly masculine. The remaining uncertainties are, speaking critically, whether there are *both* an ovary and a Fallopian tube on *each* side of the uterus? or whether, although these organs must be (as proved by the pregnancy) complete on one side, there is nevertheless a deficiency on the other? and whether there does or does not exist *any* male analogue, or analogues, however slight, within the abdomen? The subject will not fail to be one of interest at all times; and those secrets which are now hidden, and it is to be hoped will long remain so, the curious in physiological science may hereafter solve.

With regard to the *class* to which J. B——'s case belongs, it cannot be placed with *certainty* amongst those instances of hirsute growth which are the consequence of mingled, although concealed, organic structures, for the existence of any such is not proved; nor amongst those which are strictly accidental, for *entire absence* of structural male peculiarity is also unproved. Neither can it belong to the class of *secondary* peculiarities from malformation of primary external organization, for no such malformation exists. I am enabled, by the kindness of a friend, Mr. Hogg, to show you who have not seen the original an excellent likeness of her: being taken in daguerreotype, it cannot exaggerate or diminish the peculiarities represented.

I have been favoured with a note from a friend, (Mr. Druit, of Clarges-street,) informing me that he saw, at St. Cloud, a female with profuse beard and moustache, who occupied a booth as a curiosity to be seen by the public. Mr. Druit says he found a modest-looking girl, of seventeen years of age, born in Switzerland. She had a long, curly beard and moustache, which might have excited the envy of a cuirassier, and had almost every visible part of the body covered with black hair. Wherever on the body of an ordinary human being there is a short down, there, this girl had quite a thick coat of hair, especially on the back of the neck, down the back, and on the arms. She was a feminine-looking person, of modest manner, and, with the exception of the inordinate growth of hair, there was nothing to indicate doubtful sex. The bosom looked like that of other girls. Mr. Druit considers that the body was more hairy than that of any man he ever saw.

Mr. Druit was precluded by the circumstances under which he saw her, (surrounded by visitors,) from making physiological inquiries, but was informed by the mother that catamenia had never occurred.

A case, the facts of which were of posthumous discovery, is recorded in the "Philosophical Reflections" of Wolf. The corpse of a woman, buried at Nuremburg, was discovered perfect after forty-three years, and everywhere covered with a thick-set, dark, long, and curling hair.

As a practical application of the phenomena presented by J. B——, legal and judicial inquiries may afford an interesting field. The person came (as already stated) under my observation as a preliminary step to the fulfilment of an engagement to marry. On that point, however, there did not appear to be any difficulty of decision, there not being any reason for deciding that she could not be a mother as well as a wife, and therefore no reasons, in point of law, against the nuptials.

A case of extreme difficulty of decision, however, occurred in the person of Maria Dorothée, or, as this individual was called in the latter years of his life, Charles Durge. This person was pronounced, during his lifetime, by some of the highest authorities, to be male, and by others to be female. Nor was certainty arrived at until after death, when dissection proved that it was an example of duplex organization.[*]

An instance of forensic inquiry, however, as to identity of person, might arise, in which an individual unknown, and having the personal peculiarities of J. B—— might lead to the most involved and difficult perplexities.

The talented and ingenious application of medico-forensic science, in the case of the late Hannah Brown, (the victim of Greenacre,) whose head, trunk, and several parts of the body he dissevered from each other, and deposited in sundry places remote from one another, overcame difficulties almost insuperable; and parts which the vigilance of police research discovered in the hiding-places to which they had been consigned, were brought together, and placed in anatomical apposition with each other, under the guidance of a medical jurist, who, with anatomical skill and forensic acumen, enabled the legal authorities to place before a final jury evidence founded, not on surmise alone, but on proofs, the result of facts carefully collated, carefully compared, and carefully reasoned upon, which corroborated each other and the fact of identity, by a series of data substantial, lucid, and complete.[†]

Should any melancholy catastrophe occur to an unknown individual, having the personal peculiarities possessed by the subject of these remarks,—should the various parts of the body be dissevered, and strewed in different places, and become the subject of after examination,—a first impression from inspection of the remains would be, that there had not been one victim only, but two victims; a difficulty which might even be enhanced under the suggestions of subtle ingenuity, practically applied in aiding a guilty concealment. The head, deprived of its long hair, would present the most striking resemblance to a man's head, while the long hair would be deemed to be that of a woman. The anterior part of the thorax, with the mammæ, separated from the back part of the thorax, would present, to all seeming, the back of a man and the breast of a woman. The limbs, separated from the body, and from the hands and feet, would present the hirsute appearance of a man's limbs; and the small feet, and hands, and fingers, the appearance of those of a woman. These points, however, are strictly forensic, and the case may, in relation to that subject, recur to your recollection with interest hereafter.

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[*] Cyclop. of Anatomy and Physiology, vol. ii.

[†] Medico Legal Report by Mr. Girdwood. London Medical Gazette, 1836.

ILLUSTRATIONS
OF THE
SUCCESSFUL TREATMENT OF CLEFT PALATE.

By John Avery, Esq., F.R.C.S.E.,
Surgeon to the Charing-cross Hospital.

In The Lancet during 1850, I published a paper containing three illustrations of the complete cure of cleft palate by the division of the above-mentioned muscles. I then endeavoured to show why the incisions proposed by Professor Fergusson were entitled to greater confidence than any hitherto proposed, and concluded with the remark, that if the operation were properly performed, according to this method, I felt convinced success would *in future* be the rule, and failure the exception, being exactly the reverse of what had before happened in this country. I have much pleasure, therefore, in now bringing forward four additional illustrations of success, to show the correctness of those anticipations; at the same time, I may observe that I have not as yet had a single instance of failure.

Case 1.—A man, aged eighteen, living in Park-lane, Waltham Cross, healthy, and in good condition, came into the Charing-cross Hospital, October 11th, 1850. A cleft extended entirely through the soft palate, and rather better than half an inch in the hard palate, its anterior extremity being obtusely rounded off at the posterior edge of the palate bone: the cleft was about half an inch wide. Both sides were nearly equal in size and of good thickness throughout. The operation was performed on the 18th of October 1850. It was obvious here, as in the second case related in the former paper, where the cleft extended much farther into the hard palate, that the simple division of the muscles would not suffice to close the anterior part of the fissure. Therefore, after freely dividing the levator paliti above, and the palato-pharyngeus in the posterior arch, the mucous membrane and fibrous tissue were carefully peeled off from the under surface of the palate bones, and then, with pointed scissors, curved on the flat, the soft palate was completely severed from the posterior edge of the palate bones, upwards into the nostrils, leavingthe mucus membrane towards the mouth entire through the whole length of the flap, in the manner advised by Dr. Warren. In doing this, a slight nick was accidentally made in the edge of the right flap, which afterwards interfered a good deal with the proper adjustment of the parts. The edges were pared by piercing with a small double-edged scalpel, which removed a small band about half a line in thickness along the whole length of the flap. Five sutures were necessary, those in the palate entering fully half an inch from the edge of the flap. They were tied, beginning with the most anterior, with the knot described in the last paper. As there was still a little tension on the right side after the ligatures were tied, the palato-glossus was divided in the anterior arch of the palate. The nick above mentioned, in the right flap, prevented perfect adaptation, and made me anticipate mischief at this point. It was caused by using a knife which had not been made according to order, and came in only just before the operation; consequently it could not be proved, as any new instrument ought to be, before use.

Barley-water, beef-tea, thickened in various ways, wine and water, were freely given when the patient felt inclined to take them. For the first three or four days, injections of beef-tea and sherry were administered morning and evening. He was very comfortable the first evening after the operation, and slept well. On the 21st, the third day having been completed, No. 4 ligature was removed. The ends of the uvula had slightly separated; the other ligatures held well. On the following day, No. 1 was removed. There was sloughing about it, which appeared to spring from the nick alluded to, and which I feared would be extensive. The breath was very fœtid; he fed well; his bowels were kept open by purgative enemata. The sutures were all away on the sixth day, and then the sloughy part at the anterior angle separated and left an opening in front which would admit the forefinger, but between this and the open ends of the uvula there was perfect union. It was gratifying to see how the opening in front diminished from day to day, as also did the slight separation of the ends of the uvula, assisted by the occasional use of the concentrated solution of cantharides in acetic acid, advised by Dieffenbach. On the 26th Nov., he left the hospital, with a slight separation of the uvula, and the opening in front scarcely admitting the end of the little finger. He was instructed in the use of the blistering fluid, and came back in two months with the opening nearly closed, and shortly after it was perfectly so. The details of the latter part of the case are dwelt upon to show that from the almost certainty of the union which the division of the muscles allows to take place in the largest and thickest part of the velum, any accident in front of or behind this point really makes very little difference in the ultimate result. This observation I have been able to verify on two or three occasions where the operation was not performed by myself.

Case 2.—A man, living in Market-street, Oxford-street, aged forty-one, a shoemaker, in good health, came into the hospital a few days after the preceding case. The cleft commenced half an inch behind the hard palate, and divided the velum as well as the uvula very equally, the flaps touching each other on attempting to swallow. The operation was performed on the 24th of October, 1850. A free division of the levator and palato-pharyngeus muscles rendered the flaps quite flaccid, and after paring the edges, four sutures sufficed to keep the parts in apposition without the slightest strain. The duration of the operation was very much curtailed by not having, as in the former instance, to separate the soft parts from the bone. He suffered very little in consequence. The rules as to diet were precisely the same as in the last case. He progressed without the slightest bad symptom. On the 28th—four days completed—No. 1. ligature was removed; on the 29th, No. 4; and on the 30th—the fifth day—the remaining two ligatures were taken away; and it was not until that time it was observed the uvula was slightly separated at the point. Everywhere else the union was quite firm, and in a few days he left the hospital (Nov. 7, 1850.)

Case 3.—This case surpasses any of the others in point of interest, in respect to the particular method, and shows very conspicuously to what extent one can rely on the security the division of muscles gives, under very disadvantageous circumstances. The patient, a married lady, aged thirty-five, fair, and of very delicate frame, was brought to me from the neighbourhood of Brighton, by Mr. John Lawrence, on the 12th of September, 1851. He wished me to perform the operation on the following morning, being anxious to get back to Brighton. The patient had been operated on ten or twelve years before, according to the old method, and I need not add, with all the skill and knowledge that could have been afforded, at the time, when I name the justly celebrated operator, Mr. Guthrie, sen. I understand two other attempts were subsequently made whilst the parts were still fresh.

The anterior extremity of the cleft was a good deal rounded off; a considerable deficiency was also observed in the depth of the bony arch, formed by the palatal processes of the superior maxillary and the horizontal plates of the palate bones. This deficiency was made up by a proportionately greater depth of the velum, so that, although the cleft did not reach quite so far as the hard palate, yet it equalled in depth those clefts where, the usual proportion of hard and soft palate being preserved, the division reaches the bones. The flaps were thin and moveable, and almost disappeared against the sides of the cavity when they were irritated. The tongue was much arched and prominent. Between the anterior extremity of the cleft and the palate bones, the parts were so thin that they appeared almost transparent, and resembled a piece of prepared membrane, moistened and stretched across the palate. This thin edge of the anterior extremity of the cleft, only gradually thickened backwards, as it formed the edge of the flaps, which were still delicate, even at their thickest part. The uvula on the right side was really only a pea-like appendage, attached by a small string-like pedicle to the velum; on the left side it preserved its form, but was very slender.

I felt sorry the case had come up, as I could hardly persuade myself the materials were substantial enough to encourage any strong hope that a successful attempt might be made, particularly if the least untoward accident should follow. I ultimately, however, determined to make the attempt: at the same time, nothing but the extreme confidence in the complete control that a careful division of the muscles gives over these parts, gained by previous experience, could have induced me to yield to the persuasions of Mr. Lawrence and the lady's husband. Having this confidence, I did not feel justified in depriving the patient of the chance she had so much set her heart upon, however great the risk and annoyance of a failure would have been to myself.

More than ordinary pains were taken to divide every fibre of the muscles, and to carry the incision well forward above the flaps towards the hard palate, and I had never succeeded before in rendering the divided velum so completely flaccid; so much so, indeed, that in the later stages of the operation, the flaps literally hung so closely together as to cause great inconvenience in passing the different sutures. The greatest difficulty was in paring the pedicle holding the uvula on the right side without severing it from the velum. The time occupied in the operation was necessarily long, notwithstanding every assistance was given by the patient, but when it was completed the union was perfect and satisfactory, without the slightest strain. She took liberally of food on the afternoon of the operation, and had the usual enema with laudanum, and also took a little laudanum with her beef-tea at night. On the 14th, the day after the operation, she went on well. On the 15th, her skin was hot, and pulse 104 to 110; her mouth was extremely foul; she felt a great deal of uneasiness about the stomach, and in the course of the day had some difficulty of breathing. 16th: She was still restless; pulse quicker, 130; mouth still very foul; tonsils sore and enlarged: one could scarcely have thought it possible union would have taken place with the mouth and parts in such a state. The diet was persevered in; mustard poultices were applied to the throat and stomach, and acidulated drinks used; she had no cough, but a sensation of choking. She thought the nutritive enemata made her uncomfortable, and I was less satisfied with them than on former occasions, and indeed determined to do without this disagreeable aid in future cases. Her mouth was in such a state one could not see the condition of the sutures. On the 17th, the fourth day, she was altogether improved, but still troubled with glairy mucus hanging on the larynx. The middle ligatures were seen holding well without any sloughing; the most anterior were surrounded by a small slough; those of the uvula could not be seen. An enema with senna produced a free evacuation, and she took a good quantity of nourishment. The wind had been in the east since the day after the operation, and she now suffered from cold. She complained of tightness across the chest; the mouth was still in a bad condition, and her stomach was very irritable. On the 18th—the fifth day—I had a good view of the parts, and found them well united to the very end of the uvula, except at the first ligature, which had come away with the thin membrane around it, and left an opening about the size of a pea. On the 19th—the sixth day—the second ligature was removed, as it was hanging loose. She coughed a good deal without disturbing the parts. On the 20th—the seventh day—all the other ligatures were removed, and she vomited slightly; but all held well. She now took more substantial food, but complained of much weakness, and her convalescence was slow. On the 27th—the fourteenth day—she was well enough to go back to the country; and her husband was instructed to touch the opening every day or second day with the solution of cantharides.

I saw the patient a short time ago. The opening was considerably diminished, and will, I have very little doubt, soon close entirely.

Case 4.—A young female, aged twenty-two, residing at Camberwell, was sent to me by Mr. Jackson, of Sebbon's-buildings, Islington. The success of this case equalled my most sanguine expectations. The cleft was entirely through the soft palate, equally dividing it, and just encroached on the hard. It was wide enough at its anterior extremity to necessitate, as in three of the other cases, the tedious process of peeling the soft parts from the hard palate, and dividing upwards into the nostrils. This was unusually difficult here, in consequence of each flap rising in front from a small tubercle of bone, from the convexity of which the thin, stretched membrane had almost to be scraped; and the difficulty of doing this without dividing it can be easily conceived. The levator palati and the palato-pharyngeus muscles were divided; and there being plenty of thickness, five sutures brought the parts into admirable apposition. There was, however, still a slight strain on the left side, and consequently the anterior arch was freely divided. The good effect of this was manifest from the wide separation of the edges of the incision. She was rather obstinate in persisting not to swallow as much as she was ordered. I therefore determined to see her take her food, and made her on several occasions swallow a whole breakfast-cupful at one time. She did not have any nutritive enemata, and I am satisfied she took more food than any of the others. The progress of this case was very favourable; there was scarcely an alteration in her pulse or skin; her tongue remained quite clean; and she was free from cough. The operation was performed on the 14th of October, 1851. On the 19th, the fifth day completed, Mr. Henry Lee, of King's College, saw her with me. The parts were quite close to the very end of the uvula, and all the sutures were removed at the same time. Union appeared perfect, showing a smooth cicatrix in the whole extent, excepting a line or two at the anterior extremity. When contraction took place, this point opened a little, but closed finally after the application of the blistering fluid. On the sixth day she was allowed to converse, she ate a mutton-chop, and went for a walk into the park. Shortly after, she went home.

In relation to the foregoing cases, I have avoided, as much as possible, unnecessary detail, and have only touched on such points as present practical value, and serve to call attention most forcibly to the leading advantages of this excellent operation. Unfortunately, much yet seems necessary to be done to remove the apathy existing among surgeons in respect to this subject: for, with the exception of the cases published by Professor Fergusson as occuring in his own practice and in that of a few of his friends, together with some lately recorded by Mr. Gay, the enterprising surgeon of the Free Hospital, there is no evidence of anything like a general or even a frequent adoption of the method. A good object will certainly be obtained, if, by the foregoing additional testimony, surgeons at a distance from the metropolis can be led to believe that this operation for remedying a very distressing malformation, though less exciting than that of removing monster tumours, or performing Cæsarian or ovarian operations, is worthy their best attention, offering at least a more certain advantage than those striking exploits, and yielding, in its results, a satisfaction scarcely inferior to that of any operation in the whole domain of surgery.

It is a great mistake to suppose that because the unfortunate subjects of this deformity do not suffer bodily pain, their situation should the less excite our utmost sympathy. I never look back upon the change which took place in the morale of my first patient without feelings of the highest satisfaction. When I first saw him, his shyness was quite painful; his look was downcast and desponding, and his expression was awkward and almost repulsive, showing how keenly he felt his infirmity. The eagerness with which he hailed the thought of the operation, and the heroic courage and patient endurance he maintained during its long and painful performance, without chloroform, bear ample evidence that the miseries attendant on afflictions that, in his own estimation, lower an individual among his fellow-men, are not less keenly felt than the sufferings produced by the most painful diseases. It is a case in which one really *can* "minister to a mind diseased." His straightforward and cheerful look, a few months after, convinced me of this, when, quite a different man, he passed through London after his marriage. In a case in which Mr. Gay made repeated attempts, which redound greatly to his skill and credit, to remedy an aggravated case of deformity of the hard as well as the soft palate, it is impossible to conceive, without seeing it, the extraordinary courage and heroism, the subject of it, a girl, displayed on the several occasions she submitted to be operated on at her own request; showing, in the midst of the greatest poverty, how much worse than poverty she felt this mark of her bodily inferiority amongst her associates! Those who have witnessed many of these cases know that as a class none are more alive to their infirmities than these unfortunate beings. The trifling number of published operations give no estimate of the number of cases which are in existence Some idea can, however, be formed by calling to mind their frequency in infants in connexion with harelip. No doubt many of the worst cases die on account of the difficulty of suckling them; but a great many remain, and are unperceived on account of their diffidence, and the little encouragement practitioners in general offer of success from the operation. A very favourable feature with regard to the operation itself is, that scarcely any modifications have been made in the manner in which it was performed in the first case. It is easily accomplished with moderate skill and patience, after a careful study of its steps. It should be seen well demonstrated on the living or the dead subject; for I have been astonished at the erroneous ideas some excellent operators have formed of the proceeding, after they were fully convinced they had made themselves masters of it. I would strongly recommend the flaps to be pulled about as little as possible. The division of the levator palati can generally be almost entirely effected without seizing the flap with the forceps—a plan to be adopted if possible, as it is difficult to draw the flap out against the muscular contraction without considerable violence. After the division of this muscle and the palato-pharyngeus, the part can be held with much more delicacy, and consequently without injury. In two of the cases a small portion of the uvula remained ununited, and in one of these I made an unsuccessful attempt, by paring the edges, to unite the portions, although it was hardly worth while. Both these cases happened to be hospital patients, and perhaps were not so well nursed as the others. In the other five cases union took place to the very end of the uvula. I believe this result is unusual, and may be owing to the great pains taken to get the very secure hold with one of the sutures just at the base of the uvula, to command the movements of the ununited azygos; another at the middle; and the last very near to its point.

A very important question in connexion with this subject is,—What is the earliest age at which this operation may be undertaken? M. Velpeau ("Med. Oper." second edit., vol. iii. p. 537) believed it was performed successfully in France in 1764, in the case of an *infant*, where the cleft extended from the incisive teeth. My friend, the distinguished military surgeon of Strasbourg, M. Sedillot, has lately sent to the Academie of Paris an account of a successful case in a young person ten years old. He performed the operation by a method peculiar to himself. I have not yet had a case offer so young, but I should not hesitate to follow the example of M. Sedillot, if the patient were docile. The recovery of the voice, I should expect, would be much more perfect when the operation is performed at an early age, and, in case of failure, there is as good a chance of success on a future occasion. From carefully watching these cases, I should now feel much more confident in operating at an early age than I should have done formerly, because I have a *strong conviction* that if the muscles are well divided and the parts firmly put together, no ordinary effort of the patient—even coughing or vomiting—will separate the parts within the first forty-eight hours, any more than that, in infants, taking the breast will separate the parts after the operation for hare-lip. I have observed that those patients have done best who have taken their food most fearlessly, or who, I was quite satisfied, had taken a good allowance of food within the period mentioned. This was particularly well seen in the second case of the first paper, the patient having been nursed and attended to by his mother, a very intelligent and careful person; and also in the last of the present cases, which, as it was close to my own residence, I superintended on this point myself. Scarcely any general disturbance followed the operation in either of these cases. I have already alluded to the great credit due to Sir Philip Crampton for his first introduction of this all-important practice of early and careful sustentation. If well followed up, union will be safe by the third or fourth day; if neglected, the patient is liable to disturbance of the stomach, irritability, general and local disturbance. The uniting process will be less perfect without due attention to this particular; and there may be sloughing and easy separation of the parts, even five or six days, or later, after the operation. It should be particularly remarked that this separation does not take place because the parts are *torn asunder*, but because they have *failed to unite*. The ligatures being now loose, the parts naturally fall from each other, and, if examined at the time, present a sloughy appearance. On this account I am particularly desirous to impress the necessity of the certain administration of a good supply of food within the first forty-eight hours. The quantity after this time may be regulated according to the appearance of the parts, particularly about the critical period of the fourth or fifth day.

There are a few other points I would have wished to have adverted to, but I will defer them to a future occasion. Other cases which I am about to operate upon will give me an opportunity of doing this. I cannot conclude, however, without expressing the satisfaction I have derived from the success of the above cases, contrasted with that of the great French operator, M. Roux. In the former paper, the opinion entertained by M. Sèdillot of the success of M. Roux, was mentioned, but I was hardly prepared for the following observations of M. Velpeau on the same point ("Med. Oper.," vol. iii. p. 561, second edit.) "Toutefois, l'operation èchoue encore assez souvent; une jeune fille qui j'ai vue à l'Hôtel Dieu l'a subie cinq fois sans succès. *Plusieurs* malades de M. Roux en sont MORTS, et j'en ai vu un certain nombre que ce chirurgien avait opèrès sans fruit. Les autres praticiens ont obtenu une proportion de resultats heureux moins forte que M. Roux, en sorte qu'il n'est prudent de la tenter que dans de bonnes conditions, chez des sujets bien portants, dociles, et âgès de quinze à cinquante ans, par exemple."

ON

TWO CASES OF OVARIAN ABSCESS.

WITH REMARKS

By H. Tanner, M.D., L.R.C.P.

In July, 1849, a poor woman, forty-four years of age, the mother of three children, the youngest eighteen months old, came under my care at the Farringdon General Dispensary, suffering from the symptoms to be presently mentioned. Her history was, that seven weeks previously she was kicked by her husband over the lower part of the abdomen, which gave rise to so much sickness and suffering, that she was obliged to remain in bed for two days. The pain then diminished, but returned with increased severity, accompanied with rigors, at the end of a fortnight, when her catamenia appeared, though more scantily than usual. She had some medicine from the parish surgeon, which gave her relief, and she was enabled to continue doing her household work, until the following monthly period, when she became much worse, complaining especially of acute pain at the bottom of her abdomen and towards the left side, of lancinating pains down the thigh of the same side, and of inability to keep any food, &c., upon her stomach. The menstrual flow was very scanty, and ceased five days ago.

On examining the abdomen, I found it swollen, tympanitic, and tender on pressure, especially in the left iliac region, on pressing into which, a tumour, about the size of an orange, could be felt. On examining per vaginam, this swelling could be more distinctly felt on the left side of the uterus: it appeared rather moveable, that is to say, as if it could be pushed upwards, and on pressure an indistinct sensation of fluctuation was communicated to the finger. The cervix uteri was healthy Her bowels were costive, and she experienced much pain on going to stool, and was never free from "bearing-down pains."

My diagnosis was, that the left ovary was enlarged, and that suppuration had probably taken place. As there were no indications for immediate local treatment, and as the woman was exceedingly weak, I ordered her tonics and nourishment, and directed her to keep as quiet as possible. This treatment was continued until the morning of the 12th of August, when I was suddenly called to visit her, as she was said to be dying.

On my arrival I found that she had rallied, and learnt from her that the catamenia had appeared on the previous evening, that the flow was rather more abundant than it had been on the previous occasion, and attended with less pain until this morning, when, on getting out of bed, she felt something give way in her stomach, and became very faint. Feeling a strong desire to go to stool shortly afterwards, she did so, and passed about half a pint of unhealthy-looking pus, mixed with a little blood. She had felt easier since taking some hot gin-and-water. On examining the abdomen, the tumour could not be felt in its usual situation; but as pressure gave her pain, and caused a sensation of sickness, it was only employed with gentleness.

The further progress of this case was very satisfactory; although much depressed by a troublesome attack of diarrhœa, yet, as she was fortunately able to obtain nourishing food, and had a good appetite, she gradually gained strength, and at the end of three months was quite well. I should mention that she continued to pass small quantities of pus with her stools for some time after the first discharge, and that she always felt much relief on doing so. On examining the abdomen at the end of the three months, no swelling nor enlargement whatever could be felt; but on making a vaginal examination, a slight hardness could be felt at the left side of the uterus, pressure on which gave a little pain.

Before making any remarks on the peculiar features of this case, it will be better to relate the second example of the same disease which has come under my notice, but which unfortunately has terminated in a very different manner. On the evening of the 28th January, 1852, I was hastily summoned to a lady who had been under my care for about two months, suffering from incomplete hemiplegia of the left side of the body, attended with great debility. I was unable to attend for about an hour, and on my arrival found her propped up in bed, excessively prostrated, body and extremities cold, and covered with a clammy sweat, and with a pulse scarcely perceptible; she was gasping and crying out with agony, and appeared to have her sufferings increased on touching her abdomen, to which she pointed as the seat of her pains; while her countenance was distorted, and bore a peculiar expression strongly indicative of approaching death. She appeared, in fact, to be suffering from all the symptoms of rupture of the urinary bladder, or of the intestines. She was unable to lie down, owing to the difficulty with which the respirations were performed, the bronchi being choked with mucus. Brandy in large quantities was administered, heat applied to the extremities, and fomentations and mustard cataplasms to the abdomen and chest; while, as a measure of precaution, a catheter was introduced into the bladder, and a small quantity of urine withdrawn. A draught of Battley's solution and ether in camphor mixture was also given, and she was enabled shortly to utter a few words to her husband, to the effect that she was dying. Such appeared to be the case; but as I could not satisfactorily or with certainty account for the symptoms, I determined to keep her alive, if possible, by the administration of brandy, &c., and in about an hour was much pleased at finding the pulse more perceptible, and a slight return of warmth in the extremities. To avoid being tedious, I may say that she gradually rallied, though not to any great extent, and that when I left her, at the end of twelve hours, she was comparatively free from pain; her pulse was distinct, although too quick to be counted, and she expressed herself as being much better. She had brandy frequently during the night, and altogether about a drachm and a half of Battley's solution of opium.

I subsequently endeavored to get the system under the influence of mercury, at the same time supporting the strength, as she was exceedingly depressed. The stomach was so irritable that only the smallest quantities of fluids could be retained at one time, occasional draughts of champagne appearing to agree the best, as well as proving very refreshing; while lumps of Wenham Lake ice were employed to allay the urgent thirst. It was necessary also to continue the use of the opium, for as soon as its effects went off, the suffering returned, accompanied by pains resembling those of labour. The catamenia were present, but were very scanty.

On the morning of the 31st January, the pains recommenced, and, from the depressed condition of the patient, were badly borne. As the pupils were contracted from the effects of the opium, I thought it unwise to continue the use of this drug; and being strongly entreated to give relief by some means or other, I determined to have recourse to the vapour of chloroform, and accordingly did so with a most beneficial effect. The influence of this agent was kept up for some hours, not to such a degree as to deprive the patient of consciousness, but sufficiently to annul the pain; relief was also experienced from applying a rag saturated with it over the abdomen. However, although the pains were mitigated, it became quite clear that the case was becoming hopeless, and that she was sinking; and after remaining free from pain for some time, she gradually became more exhausted, and died on the evening of the 1st February, about ninety-six hours from the commencement of the attack.

Sixteen hours after death, I made an examination of the abdomen, on opening which, marks of inflammation extending over a great part of the peritonæum were visible, a large extent of it being congested and thickened, especially that portion which lines the lower part of the abdominal walls, and is reflected thence over the bladder and uterus to the rectum.

There was a small quantity of sero-purulent fluid in the iliac fossæ, and slight shreds of coagulable lymph connected the rectum and uterus, the uterus and bladder. The right ovary appeared to consist of a cyst, as if suppuration had taken place in its substance: its walls were collapsed, and it was slightly glued to the intestines and surrounding parts by lymph, especially to the right Fallopian tube, which was matted to it. The cyst, when full, must have been about the size of a hen's egg; it had discharged its contents into the peritonæum through a small ulcerated opening. The left ovary was turgid and vascular; there was no appearance of any Graafian follicle having burst, although one was fully developed, and projected from the surface; it was filled with fluid, but no ovum could be discovered. The Fallopian tube of this side was vascular; its fimbriated extremity was free; it was pervious through its whole extent, and contained mucus. The uterus was enlarged to at least double its natural size, and its fundus was covered with a semi-fluid, glutinous coating; on opening it, it was found congested, and its cavity contained a small quantity of fluid blood. The cervix uteri was enlarged and indurated, the os had assumed the form of a transverse fissure, and both the lips were ulcerated and lobulated, as if they had been lacerated some time previously. The ulcerated surface extended about half an inch up the cavity of the cervix.

The remaining organs in the abdomen were healthy, with the exception of the liver, which was enlarged, and covered with a large number of minute tubercles. The other cavities of the body were not examined, in deference to the wishes of the friends.

I should mention that this lady was about forty-two years of age, that she had ten or eleven children, and that her last labour, which was a severe one. took place fourteen months ago. Since this period she had been hemiplegic on the left half of the body, and had suffered from great debility. Her catamenia were regular, and were present at the time of this attack; she also suffered from leucorrhœa. No ovarian tumour was discovered during life, as she never complained of any symptoms which could lead me to suspect the existence of one, prior to the bursting of the abscess. She suffered occasionally from a dull burning, aching pain at the lower part of the abdomen; but as it appeared to be slight, and as she was rather hysterical, I did not pay much attention to it. She had long been in a very low and depressed state of health, and the adoption of any lowering measures would, I doubt not, have been immediately fatal.

Remarks.—I have thought these cases worthy of record, partly on account of their general interest, and partly because they help to prove that inflammation of the uterine appendages, and its consequences, (as enlargement, induration, and abscess,) are by no means as uncommon in the non-puerperal state as was at one time considered. The erroneous nature of such an opinion has, however, been previously pointed out, especially by Dr. Bennet.

As regards the first of these cases, it is of course impossible to say whether the abscess was situated in the broad ligament, the Fallopian tube, or the ovary of the left side; or whether it may not have been in the cellular tissue of the pelvis. I can hardly give my reasons for having diagnosed that the ovary was the organ affected, although such was the opinion come to after a careful examination, Had the abscess however, been situated in the pelvic cellular tissue, it is probable that it would have been less circumscribed, and certainly less moveable. Its cause, no doubt, was the blow received seven weeks previously, by which acute inflammation was set up. Had advice been sought at that time, and proper treatment adopted, the formation of pus might have been prevented, cases of ovaritis being as amenable to treatment as inflammation of most other internal organs.

In looking for a cause in the second case, we find much more obscurity, there never having been, as far as it can be ascertained, any symptoms of acute inflammation of the affected organ. It appears by no means improbable, however, that the chronic inflammation and ulceration of the cervix uteri, which I am inclined to think had existed for some months, may have given rise to ovaritis, ending in suppuration; though at the same time it must be remembered that the causes of these abscesses are numerous.

The evacuation of the contents of these tumours—the one emptying itself into the bowel, the other into the cavity of the peritonæum—is by no means that termination which most frequently occurs. As is well known, abscesses of the uterine appendages may open into the vagina, uterus, bladder, intestinal canal, surrounding cellular tissue, peritonæum, or externally; of these, the most frequent, as well as the most favourable, is that into the vagina; the next in frequency, that externally. Of nine cases related by Dr. Lever,* six opened into the vagina, two externally and one, first externally and then into the bowel. The external opening usually takes place in one of the inguinal regions.

The last point worthy of notice, is the fact of these abscesses giving way at the menstrual periods—a fact which can only be explained by the increased excitement of, and the greater flow of blood to, the uterine organs at this period.

In reviewing and reflecting upon these cases, the questions naturally arise—Could any other plan of treatment have been adopted? or, supposing similar instances again to occur, should anything further be attemped? I am inclined to reply in the negative, not only from looking at the evidence in these examples, but also from the general nature and course of diseases of the uterine organs, feeling convinced that irreparable mischief is often done by too much local interference. As a general rule, in these particular cases, Nature is the best physcian; and although she may sometimes err, (so to speak,) as in the last instance, still our limited powers could not direct her aright.

A CASE OF

RUPTURE OF THE JEJUNUM, CAUSED-BY A KICK EROM A HORSE.

PERITONITIS; DEATH IN THIRTY-SIX HOURS; AUTOPSY; REMARKS.

By M. J. M'Cormack, A.B., M.B., M.R.C.S.L., Shirley.

April 17.—I was summoned hastily to see J. L——, who, it was stated, had been severely hurt by a kick from a horse. The accident occurred about one o'clock P.M.; but not having been at home when the summons came, I did not see him till about half-past four P.M. I found him in bed, lying on his back, complaining of acute pain in the lower portion of the abdomen, on the right side, a little below the umbilicus. He informed me he had received a kick from a horse, whilst standing at no great distance. On turning down the bed-clothes, and examining the seat of the injury, no abrasion of the cuticle was perceptible, nor, indeed, any mark of a blow having been inflicted; pressure did not cause as much pain as might have been expected; percussion gave a clear tympanitic sound over the whole of the abdomen; the knees were drawn up; respiration hurried; countenance pale and anxious; surface cold and clammy; pulse low and wavering; had passed urine freely immediately after the accident, free from any appearance of blood; had not vomited, but felt sick; complained of great thirst; had not dined. The diagnosis I arrived at was, that there was injury to some of the viscera, but that neither the bladder nor stomach was implicated; prognosis unfavourable. Directed warm fomentations to the abdomen, and, should the pain become more intense, spirits of turpentine to be sprinkled on the flannel cloths; prescribed internally small doses of opium, with mercury-with-chalk; and left word, should symptoms become more urgent, to be sent for.

April 18th.—Ten A.M.: Visited the patient this morning, not having been sent for again during the night; was much surprised to find a very great improvement in all the symptoms; indeed, had a stranger come into the room and casually examined him, he would not have considered there was anything the matter; his countenance was cheerful and natural; pulse rather full, soft. 70; skin moist; and temperature natural; had slept several hours; threw up *only* the first powder; pain very much diminished in the abdomen; pressure caused but slight inconvenience; had passed water, but had no motion from the bowels; had eaten his breakfast with relish; could turn on either side with less pain; tongue clean and moist, less thirst. The only symptom which made me hesitate in giving a favourable opinion, was, that the tympanitis had increased very considerably. I desired the fomentations to be continued, and the mercury-with-chalk and opium every four hours. On my return from church, about one o'clock P.M., I found a message requiring my immediate presence, in consequence of his having become worse, which I found was the case. It appears that about half-past twelve o'clock P.M. he had been seized with vomiting, and immediately after complained of an intense burning pain extending over the whole abdomen. I hardly recognised in him the same person I had seen in the morning, so great had been the change in the short interval. His countenance was anxious to a degree; respiration hurried; body bathed in cold perspiration: pulse 120, hard and small, at times intermitting; abdomen much swollen and tympanitic, and so painful that the pressure of the bed-clothes was more than he could endure. I need hardly say my prognosis was most unfavourable. I at once ordered the application of a dozen leeches to the abdomen, to be followed by constant hot fomentations; and increased the dose of opium to one grain every hour, with half a grain of calomel. Six P.M.—Again visited him, and found matters progressing rapidly to a fatal termination. The leeches had slightly relieved the pain in the lower portion of the abdomen, but it was increasing more towards the diaphragm; pulse 140, almost imperceptible; thirst intense. His employer being anxious for further advice, I obtained the valuable assistance of Dr. Oke, Southampton, who saw him at nine o'clock P.M. Suffice it to say, his opinion fully coincided with mine, both as regarded the probable lesion, and the treatment which had been pursued. The only alteration suggested was the application of a large blister over the abdomen. In about two hours and a half, death terminated the poor fellow's sufferings, which were every moment becoming more intense. He retained his faculties to the last, and died without a struggle, at twenty minutes to twelve o'clock P.M.

An inquest was held the following day, but the coroner did not consider a post-mortem examination requisite. As it was, however, a very interesting and important case, I obtained permission from the relatives to open the cavity of the abdomen *only*. This was done by Mr. Norcott and Mr. Brock, the latter a student on a visit here. To this gentleman I am also indebted for the following details:—

Autopsy.—The body was that of a middle-aged, healthy person; a patch of coagulated blood to the right of, and about two inches below, the umbilicus, marked the spot where the fatal kick had taken effect; the abdomen was hard and tympanitic, and slightly discoloured in the neighbourhood of the injured part, the discoloration extending considerably down the groin, in front, and backwards over the external oblique. On opening the cavity of the abdomen, there was a considerable emission of very noxious gas, so powerful as to compel the parties to leave the room for some minutes. On resuming the investigation, the whole of the viscera were found swimming in liquid fæcal matter of an unusually offensive description, mixed with large quantities of a thick purulent substance, peritonitis having gone on to a considerable extent. The stomach was first opened; it was perfectly healthy, and contained no trace of the black sanguineous matter which had been so plentifully vomited before death. Beginning from the duodenum, and proceeding downwards, it was evident, that whatever the injury might be, nature had made vigorous efforts to repair it. False membranes were plentifully thrown out in every direction; the intestines, which were in a highly inflamed and vascular condition, were glued together into an almost inseparable mass, and the omentum was so adherent that it tore in endeavouring to raise it. No injury was discernible till, on arriving at about the junction of the middle with the lower third of the jejunum, a rupture was discerned, which had probably been rather larger than a shilling, but was now scarcely the size of a fourpenny-piece, owing to the quantity of coagulable lymph which the edges of the wound had thrown out; the opening seemed at first to have been a transverse slit, which the pressure of the fæces from within had converted into a circular aperture. This was the only injury received; from that part of the jejunum to the rectum, all was found healthy. The bladder was collapsed and natural; the cavity of the peritonæum contained a quantity of pus; the liver was healthy, but rather darker than usual, and indicated that its owner had been no teetotaller; the spleen was uninjured; the gall-bladder natural. There was great discoloration of the left side of the thorax, extending from the sternum to the axilla, and from the clavicles to about the fifth rib, from what cause (as no further examination was permitted) we are unable to surmise; the wound on the abdomen was perfectly superficial, scarcely penetrating the adipose tissue; and the rupture could only have been caused by the sudden shock.

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* Guy's Hospital Reports, 1841

Remarks.—The chief points of interest in this case are,—1st, the infrequency of this lesion, more especially the result of direct force, as we generally find such an accident produced more by a heavy body passing over the abdomen than by a blow; 2nd, the absence on the following morning of any serious symptoms, such as would have led me to anticipate the rapidly-fatal termination; and 3rd, the efforts which nature made in so short a time to repair the injury done. And it is worthy of observation, the extraordinary tendency exhibited by ruptures caused in this and similar ways to repair the lesion; in contradistinction to wounds of the intestines from a stab with a knife or any other instrument calculated to leave clean edges. In this case, the rough edges threw out coagulable lymph enough, in less than twenty-eight hours, to reduce the aperture to nearly one-third its original size; and it may be a question whether recovery might not have taken place, were it not for the vomiting which occurred, and which no doubt was capable of tearing asunder any reparative process going on.

ON
A NEW METHOD OF TREATING DYSPEPSIA.

By J. Spurgin, M.D., F.R.C.P., &c.

About seven years ago I prescribed for my own case, which was troublesome indigestion, with excessive acidity and ejection of a large portion of my food three or four hours after my meals. I had tried various remedies that are commonly resorted to upon the usually received principles of our art; but in vain. It next occurred to me to prepare a saline solution to add to my liquid ingesta, on the same principle that salt is taken with all our solid food. For this purpose I dissolved chloride of sodium in liquor potassæ to saturation and took a few drops of the solution in my tea and beer, and sometimes in water. I found my digestion much improved in consequence, with relief of backache and other ailments, depending, it would seem, on acidity of the contents of the stomach and bowels. Succeeding so far, I thought I might improve the solution by the addition of some phosphate of soda, and, in fact, produce a useful condiment for the table, which might eventually be recommended by the profession upon a scientific basis, not only to neutralize the consequences of a weak digestion, but to prevent their occurrence, and so render the chyle more suitable for absorption into the system, and for its further change into the condition and function of blood. In this way the solution might also prove an instrument in our hands for the expulsion of quackery from some of the domains of our art.

This latter consideration weighed strongly with me to induce me to give the article a proper trial; and I induced the late Mr. South of Hunter-street, who was a general practitioner, to prepare and sell it, after having satisfied myself in my own person, and with several of my dyspeptic patients, of its efficacy and undeniable utility. The widow of this gentleman has continued to prepare and vend it, under the title of the "Liquid Condiment," for her own benefit, according to this formula:—Liquor potassæ, chloride of sodium, of each one ounce; phosphate of soda, a drachm and a half; water, three ounces. As much of this solution may be taken at a time as will not affect the taste of the beverage disagreeably.

In a great number of instances this article has proved most useful. Many families have it on their table for daily consumption, and even make their tea by first putting two or three spoonfuls into the teapot with the tea. It is not intended to be resorted to as an occasional remedy for various forms of indigesiton, but as a constant practice in like manner as with common salt.

I could write a treatise to record the successful results of its employment; but its utility needs no corroboration from myself. I leave it to its own merits in this respect, and have always objected to the advertising system to recommend it to the community.

When I consider the manifold causes that are in operation for the production of indigestion in the great mass of society, and which are resolvable into two primary classes, namely, *care* and *self-indulgence*—care that dreads want, and self-indulgence that seeks excess,—I am not surprised at indigestion baffling our art; but notwithstanding these great disturbing causes, the liquid condiment has both removed the consequences of indigestion and re-established the process of digestion in its integrity. Had the idea or the theory of the agent emanated from the ranks of quackery I should have blushed for my profession as a science; but even then, at the best, it would have been only a lucky hit, and not the result of a course of legitimate reasoning. For myself I reasoned out the matter; and whilst on the one hand, it will be proving more and more useful to society—for nothing can prevent its extensive adoption,—on the other hand, it will be instrumental in driving away quackery from many families, and thus greatly benefit our noble profession, which was never so damaged by parasitic growths upon its majestic stem and branches as it is at this day. These growths I have long endeavoured to tear away in the circle in which I have been moving; too frequently my efforts have been viewed as partaking of the like nature; but this is only a passing liability. My duty to my profession is my first consideration; and I can congratulate it now that I perceive a disposition upon the part of the public to examine the grounds of every pretension; in other words, to judge for themselves, instead of idly contenting themselves with the representations of others.

Authority is, indeed, the aim of many to attain, but few are the prizes in this lottery of life. It is high time that this game of chance in the great business of life should be abolished; rather let the certainty of truth and the sway of right reason become the foundations of human progress.

To our profession itself I do not hesitate to ascribe much of the inroad which quackery has made into it, for, like the public, it has shown a proneness to run after some two or three authorities, or some few public men, as they are called: and this to the immense injury of the profession. It is utterly impossible for any finite mind to give a due consideration to the cases which are pouring in upon its attention; its most practised skill cannot be adequate to the discharge of the business it is thus called upon to execute. The consequence of this is, that an applicant for relief is not unfrequently disappointed; he conceives he has consulted the most eminent of our faculty; he has no alternative but to commit himself to some form of quackery, where he sooner or later obtains the relief desired. His gratitude then knows no bounds; every word of his praise, however, is a reflection and a scandal upon our art. But who can justly impute blame to him for it? The blame rests with ourselves. If our profession is founded upon true principles, these should be our chief authority; for they will manifest their authority in their power to relieve, whether exercised by this individual or that; but if personal authority—the authority of a name—is what our profession would rely upon, the sooner our schools and colleges are closed the better, for their pupils and members will have quickly to make for the "diggings." No! the study and the practice of our profession must be based upon truth, and upon the certainty of the result to which it leads. There have been false lights and bad leaders in the great field of professional action; let us be more wary, therefore, for the future; and, doubtless, under the guidance of careful observation and cautious experience, which are our best authority, the profession will secure its hold upon society with a firmer grasp, and be independent of the rotten props of personal authority or capricious fashion. With our means and appliances there ought not to be a quack in the land. So far from their assuming the bold front which they are now manifesting, they should be suffering inanition, instead of reaping a golden harvest. So far from their bold advertisements maintaining the cost of many a journal, they should cease for want of the profit to which the advertiser looks. So far from their puffs tickling and winning the public credulity, they should be regarded as the noisy nonsense of the mountebank. We have treasures of knowledge in our profession, notwithstanding what the world may think to the contrary. From these treasures have the quacks stolen *ad libitum;* nor is there a plan, nor a nostrum, nor a pill, potion, ointment, bath, nor globule, but they have stolen the valuable reason and ingredient from our coffers, and impudently vaunted them forth as so many infallible remedies for every ailment, curable or incurable. I repeat, we have vast treasures of most useful knowledge; and if we will but make good use of them as instruments of cure and relief, rather than as supporters of some new theory, we shall be less divided as a body, more united in action, and too successful for the empiric art to triumph, even in a single instance, over our godlike vocation.

And now with regard to my connexion with the healing art: I beg to observe that I am neither an "allopath" nor a "homœpath," but a physician at full liberty to prescribe medicines in all doses, according to my judgment, and anxious, also, to cure my patient with a readiness and a tact that are creditable to my profession. I therefore avail myself of all the observation and experience that I can gather from every quarter. Moreover, as I have been in the study and practice of my profession for upwards of forty years. I feel entitled to speak, and even to teach, as one gifted with the authority which a large experience and an independent course of observation impart.

Let me be excused, therefore, if I append a case to the above observations, which is but one of numberless of the like nature which are occurring every day within the sphere of honourable and legitimate practice, but which, so occurring, are only regarded as "a matter of course;" whereas, if but one is supplied from the ranks of quackery, it is at once lauded to the skies, and blazoned forth everywhere as a prodigious example of the charlatan's power.

It was only a few evenings ago that I was called to a patient in my neighbourhood, who was taken to his residence by two policemen, in a state of great mental excitement. He was mad drunk from a very slight cause. His madness was so violent that his friends were anxious to have him removed to an asylum; but my experience led me to prescribe for him, even under a slender knowledge of the peculiar circumstances of his case, four grains of the compound antimonial powder, two grains of calomel, and one of opium, to be administered immediately; and if he were not calmed in half an hour, a tea-spoonful of antimonial wine was to be given every five minutes till he was quiet. I saw him again about two hours afterwards, by which time he had taken the pills and four tea-spoonfuls of the wine, and had had one copious discharge from his stomach, by vomiting, which removed the offending cause: this was nothing more than a small quantity of rum, that had been poured down his throat while he was in a state of suspended consciousness, to which he was subject, and on account of which he had been taken from an omnibus into the nearest public-house. Naturally he was most obnoxious to all fermented liquors, studiously avoiding the smallest quantity, by reason of their producing most exaggerated effects upon him. In this case, neither the reasoning, nor the practice, nor the globule of the homœpath, could have been of the slightest efficacy; and this, because a very long process of nature, unassisted, must have been gone through before a healthy state of things could have been brought about. Nor could the exhibition of large quantities of drugs be laid to my charge. My profession, however, as legitimately practised, is here vindicated from the impudent assaults of its enemies.

CLINICAL ILLUSTRATIONS OF SUB-ACUTE OVARITIS.

By E. J. Tilt, M.D.

(*Continued from August No., p.* 118.)

As the preceding cases are fair samples of many others which I have met with, it may be well to see to what deductions they lead.

1st. With regard to the predisposing causes of sub-acute ovaritis, irregularity of the menstrual process is one of the most frequently observed; for eight times out of ten it occurred in connexion with menstruation. The earlier part of womanhood also would seem most liable to this disease, as seven out of ten patients were under twenty-three, and the eldest was only thirty-two. Those too are most liable to it who are endowed with a sanguine constitution. dark eyes, and red, auburn, or black hair, constitutional peculiarities generally supposed to be allied to an ardent temperament. In this, my experience is supported by that of Dr. Pistocchi, of Bologna, who has lately published some interesting cases of ovaritis, and says that all the patients were women gifted with strong passions. Six out of the ten patients were single.

2nd. The determining causes were over-exertion during menstruation, the sudden impression of cold, marriage. In five cases, however, none could be discovered.

3rd. The symptoms: pain in one or in both ovarian regions. The pain being fixed, but sometimes subject to irregular exacerbations, being increased by pressure, by going up and down stairs, by a false step, or by anything that could jar the corresponding limb. It is well to notice that pressure on the ovarian regions did not generally determine pain in the course of the lumbo-abdominal nerves. In two cases the pain was accompanied by an amount of abdominal swelling discernible to the eye, obscurely felt on pressure on the abdomen, better appreciated by a vaginal examination, and which would have been made certain if a rectal examination had been deemed requisite. In five cases there was considerable pain and swelling of the breast corresponding to the side affected, and of both when both sides were diseased. This symptom was most marked in Case 6, which did not occur at a menstrual epoch. Dr. Pistocchi has noticed it in two cases; but I think Dr. Lightfoot has gone too far in considering it as pathognomonic of ovarian inflammation. Thus the mammary glands, the uterus, and the ovaries, form a chain of organs as strongly linked together in the morbid as in the physiological state. In Case 1 there was numbness and pain in the corresponding limb, a symptom noticed by Dr. Simpson. In four cases there was fever, but of no great intensity.

4th.—The terminations or morbid conditions induced by sub-acute ovaritis were, a painful congestion of the womb in four out of ten instances; in three, remittent menstruation; a deficiency of the menstrual excretion in three more; and in two, bilious plethora. Dr. Rigby has dwelt on the sickening nature of the pain determined by ovaritis; and Dr. Woolley, of Brompton, tells me he has often seen cases similar to those above described by me, and frequently noticed sickness as one of the symptoms. Dr. Laycock alluded to it some time back as a symptom frequent in this, as in all ovarian states, both physiological and morbid.

5th.—*Treatment:* The same local measures previously described were always adopted, with the addition of leeches and the internal exhibition of antimonials when there was fever. In the cases coinciding with marked biliary derangement, I prefaced all treatment by an emetic, the temporary increase of pain thus mechanically determined being amply compensated by the relief speedily afforded to the patient. Sulphate of quinine was very useful in bringing back menstruation to its normal type; and I cannot too strongly recommend its exhibition alone, or combined with steel or opium, according to the case.

6th.—Duration of the disease: Generally about twenty-one days; but in one case, of probable long standing, it was four months, and in another there was a relapse.

With this summary of my cases I might conclude, if they did not afford me an opportunity of offering some remarks on the diagnosis of sub-acute ovarian affections—remarks, the length of which will perhaps be indulgently received, on account of the recognised difficulty of arriving at a correct diagnosis.

Cases similar to the preceding have doubtless been of frequent occurrence, but they have been differently interpreted.

I. Formerly when they were met with, and sometimes even now, particularly when they do not occur at the monthly periods, they were confounded with diseases of the womb, and called inflammation of the bowels—a name which will doubtless be considered erroneous, as far as the localization of the disease is concerned, but which, being correct in the indications of its nature, fortunately often leads to proper treatment.

II. When cases similar to those I have reported took place at, and in connexion with, the menstrual periods, they were, and are even now, confounded with many other morbid states, under the name of dysmenorrhœa. They are considered to be merely an increase of that pain by which menstruation is usually attended, and generally left without treatment. This I believe to be often detrimental to the patient's after health.

III. Some would be inclined to explain my cases by incipient uterine disease, and might be impelled by theory to resort to measures, excellent in uterine, but unnecessary, if not dangerous, in ovarian disease. Being in doubt as to four out of the ten cases, a digital examination convinced me that there was no uterine disease; and in the history of the other cases there was nothing to make me suspect its existence, nor to warrant a vaginal examination.

Admitting that mine were neither cases of inflammation of the bowels, of dysmenorrhœa, nor of uterine disease, I must remark that they can only be explained by supposing them to depend on a nervous affection of the ovary itself, or of the lumbo-abdominal nerves, which supply *alike* the womb and the ovaries and their protecting cavity, unless I am right in considering them to exemplify a subdued type of ovarian inflammation. It would be impossible for me to show that they did not depend on ovaralgia or lumbo-abdominal neuralgia, unless I be permitted to clear the ground by a few remarks on these affections.

Ovaralgia has been admitted by systematic writers, vaguely described by German pathologists, and lately brought prominently forth under the name of ovarian irritation, by Dr. Fleetwood Churchill. But while admitting that the ovaries, like the uterus, may express their own disorder by pain transmitted to the same system of nerves, we must also bear in mind that those nerves may take upon themselves a morbid action, quite independent of diseased ovaries or womb—that lumbo-abdominal neuralgia may exist.

Certain forms of *lumbo-abdominal neuralgia* were well described by Chaussier; but it is only since the modern investigation of the nervous system, that it has been permitted satisfactorily to explain, by lumbo-abdominal neuralgia, certain morbid states formerly ascribed to the abdominal viscera. Without pretending to say that ovaralgia does not exist, I must own that I have never as yet been able to detect it, and am inclined to think that cases described as such are to be referred to lumbo-abdominal neuralgia. I make this assertion with some hesitation, because by so doing I find my opinion opposed to that of an obstetric authority of so great a value, that by differing from it I incur the risk of being wrong; but, if wrong, my dissent will furnish Dr. F. Churchill the opportunity of more forcibly vindicating his own opinions.

On perusing Dr. F. Churchill's interesting communication on Ovarian Irritation, in the impression of the *Dublin Medical Review* for July, 1851, and comparing it with what Drs. Beau, Valleix, and some other French authors, have written on lumbo-abdominal neuralgia, it will, I think, be evident that they have all described the same disease. Neither would it be difficult to explain the mistake; for it is well known that it is in the nature of the affections of nerves to be attended by pain more concentrated in certain points, whence at times pain radiates, and pressure to which increases pain. The lumbo-abdominal neuralgia is often indicated by one or more of the following *foci* of pain: 1, the lumbar; 2, the iliac; 3, the hypogastric; 4, the inguinal; 5, the uterine.

I think that Dr. F. Churchill, being particularly struck by the inguinal or ovarian point of pain, has described, under the name of ovarian irritation, a complaint which has been justly referred to a morbid sensibility of the lumbo-abdominal nerves by Drs. Valleix, Oxenfield, Beau, and others. He has followed in this the example of Gooch, who described as irritable uterus those cases of lumbo-abdominal neuralgia in which the neck of the womb is the principal centre of pain; an example already set by neuro-pathologists, who have described as spinal irritation an ill-defined group of symptoms.

I refer the reader to Dr. F. Churchill's paper, and to the French authorities I have quoted, in proof of the great similarity, if not identity, of the morbid state described as ovarian irritation or lumbo-abdominal neuralgia. But, under all circumstances, I object to the term *ovarian irritation*, because it has already been employed to express the physiological action of the ovaries, and imports another vague and indeterminate term into ovarian pathology, already sufficiently obscure. If it be only pain, let it be called ovaralgia, or lumbo-abdominal neuralgia.

(To be continued.)

ON SOME OF THE MORE IMPORTANT POINTS IN THE PHYSIOLOGY, PATHOLOGY, AND PRACTICE OF MIDWIFERY.

By J. Power, M. D., &c.

Introductory observations.—In the earlier part of the present century the state of obstetrical science exhibited a most imperfect aspect, particularly as related to its physiological principles. It is true that the writings of Denman and some few other authors, assisted by the anatomical investigations of Dr. Hunter respecting the gravid uterus, began to lead to a better intelligence of the nature of uterine action, and may be considered as the harbingers of more correct and rational views; but that no positive and well-established system at the time resulted, may be inferred from the assertion of Dr. Denman,—that "no pain in labour is without its use, or ineffective in advancing its progress." If this were the case, one of the more favourite principles of modern practice would be founded in error—namely, to deprive labour of its pain by anæsthetic means.

The first decided attempts to obviate pain in labour made nearly contemporaneously—by an American practicioner, Dr Dewees, who recommended bleeding almost *ad deliquium;* by the late Dr Sparks, of Ipswich, who resorted to the administration of opium in very large doses; and by the author of the present paper, who, in the year 1819, puplished a treatise on midwifery, in which he maintained that the pains of labour might be materially lessened, and its duration shortened, particularly by the use of friction. This work, however, by no means confined itself to the above practice, but inculcated novel views of the nature of healthy and deranged uterine action, from which the present doctrine of reflex action, as applicable to parturition, has resulted, and with which (*mutato nomine*) they virtually correspond.

The above work, although honoured with some eulogia at the time of its publication, and confessedly received as a boon by numerous practicioners, has remained comparatively unknown, and almost entirely unnoticed by subsequent writers on midwifery. Its author is now in an advanced period of life; and as he believes the work to be out of print, he deems it an act of justice to himself, if not of professional utility, to publish, or reproduce, in the present series of papers, a brief abstract of the more important of his views, with such additional observations as his more lengthened experience enables him to attach to them. In doing this he candidly confesses that he does not anticipate producing any immediate or powerful impression in their favour; for it is not easy to relinquish preconceived opinions and adopt others apparently incongruent; all he hopes is, that they may excite attention, and, before rejection, receive a fair investigation: and this under the conviction, that if ultimately adopted, they will tend to reduce the science of midwifery to simplicity and harmony, and, by rendering superfluous the numerous, and in many instances supposititious modifications of labour, improve greatly the principles and practice of the obstetric art. Such, at least, have been the results of his own experience of nearly half a century.

The Anatomy of the Uterine System, unimpregnated or gravid, is so well known, that it is purposed only to notice such facts as more particularly connect themselves with the principles to be advocated in the present papers. The gravid uterus may properly be divided into its body and its cervix, each possessing certain interesting peculiarities of structure. With respect to the former—the body of the uterus—the more important fact to be noticed is, that its fibrous or muscular fasciculi are not disposed wholly or principally in those regular longitudinal and transverse layers which many obstetrical physiologists have laid so much stress on; but the majority and stronger bundles of them run in all manner of directions throughout the whole of the body of the womb as will be evident on consulting the admirable descriptive plates of Dr. Hunter. The uterus is, in fact, an organ inintended to contract at all points at one and the same instant, and its muscles are so disposed as to ensure this effect, the grand object being, in the act of parturition, to compress the contents of the womb at all points of their surface, as it were, towards a common centre. For reasons which will hereafter be rendered evident, it is proposed to term the gravid uterus, as felt through the parietes of the abdomen, "the utero-abdominal tumour."

The Cervix.—The lower or cervical portion of the uterus presents essential differences from the body: it contains few, if any muscular fibres, and consists of an elastic or expansive tissue; while the one is ordained for contraction, the other is intended to dilate. Placed at the lower or more depending part of the womb, the cervix, at what may be termed the line of demarcation between it and the body, is connected with the vagina, into which it, in the unimpregnated state, projects, its more dependent or centrical part being perforated by an opening extending into the uterine cavity, and which is named the os uteri: the whole forming what may be designated as the cervical or orificial parts. A finger introduced per vaginam would detect a more or less bulging kind of tumour, which by way of distinction may be named "the utero-vaginal tumour." In the latter periods of gestation this protuberant cervix experiences changes, to be hereafter adverted to.

The nervous constitution of the uterus is a subject of high importance; suffice it for the present to give a brief abstract of the clear and acurate description of Dr. Hunter, in his work on the Gravid Uterus. The upper part of the uterus receives minute nervous branches from the renal and spermatic nerves; the lower part, and particularly the cervix and vagina, from the larger division of the hypogastric nerve, which expands itself like the sticks of a fan upon the parts supplied by it, the greater number of rami running to the os uteri and adjacent parts. By virtue of this supply, it may be inferred that the cervical parts are possessed of a sensor character, and are more immediately connected with the spinal brain; while the body of the uterus is mainly connected with the great sympathetic and ganglionic system, which renders it normally, like the heart and viscera, an involuntary and insensible organ.

Normal Parturition or Labour takes place when the growth of the fœtus is sufficiently developed to enable it to exist independently of its maternal system. There are two important series of actions preparatory to its commencement which must be noticed.

In the first place, the cervix uteri, soon after the sixth month of pregnancy, experiences a gradual obliteration, which is completed at the end of the ninth month. How far this arises from an expansion or absorption of its substance has not been determined; that it is not occasioned by expansion produced by the growth of the contents of the uterus, may be inferred from the fact, that at no time during gestation, does the womb, unless it be under actual contraction, afford any evidence of being full of its contents, but lies in a flaccid state around them, lake a bladder partially filled with water. The result is, that it now resembles a regular, uniform sac, with its orifice at the lower and more dependent part, the contents lying in approximation with the os uteri.

Secondly. For a few days before labour the uterus is found apparently diminished in its volume. This arises from the supervention of a minor contractility, distinct from that contraction which takes place in active labour, inasmuch as it is more permanent, and unaccompanied by sensation, and may therefore be designated as the permanent or insensible contraction; its effect is, to bring the muscular tissues of the uterus into closer approximation with its contents, and it probably assists in completing the obliteration of the cervix, and in throwing off the gelatinous plug which has previously sealed up the mouth of the womb.

Active Labour.—The above preparatory stage having been accomplished, the uterine muscles fall into contraction, the more immediate exciting cause of which will hereafter be considered; they now compress the contents of the womb with more or less force. Assuming the uterus to be a regular and uniform sac, whose parietes were throughout of equal thickness and strength, the result of such compression would be to impel the contents towards their common centre, and no tendency to expulsion would be induced. But this is not the case; the orificial and cervical parts possess few, if any, muscular fibres, and are of a distensible nature, and therefore give way to the pressure, so as eventually to form an opening, through which the contents of the uterus are expelled.

This expulsive property of the uterus, termed the parturient nisus, or vis expultrix, doubtless is produced by a determination of nervous principle to the organ, dependent on its peculiar nervous organization. The precise nature of the latter has not yet been fully demonstrated: but it is generally assumed that the effect is connected with two distinct kinds of nerves, the one termed nerves of sensation, the other nerves of motion; and that an impression or irritation applied to the former is propagated or conveyed to the latter: the subject, however, will be more fully entered upon in the subsequent papers.

It is practically important to be able to determine the presence of this uterine contraction, and, if posble, the degree of its energy; for these points are by no means proportionate to the sufferings of the patient—nay, the most painful, and it may be added, protracted cases, are not unfrequently entirely divested of it. There are two especial modes by which it is to be distinguished: one, by an examination of the utero-abdominal tumour, originally introduced by the author,* the other by an examination of the utero-vaginal tumour. In the first case, if the hand be applied to the utero-abdominal tumour when the contraction is absent, it will be found in a comparatively flaccid state; parts of the child may, indeed, be distinguished, but the general feel is that of compressibility. As the contraction commences, the compressibility changes gradually into a tense hardness, so that, to speak emphatically, the part becomes solid as a board; the more decided the effect is, the more vigorous is the accompanying action. This mode of examination affords a delicate and excellent means of "trying a pain," and the information it gives is uniformly correct, its presence evincing the existence, and its absence, the want of true uterine action. It will not indicate the state of presentation or the progress of the case; but, when these points have been ascertained to be favourable, it may obviate the necessity for frequent examination per vaginam, while the information it is capable of affording may be acquired even through the dress of the patient, without apparent interference. An examination of the utero-vaginal parts, made by an introduction of the finger per vaginam, affords, as far as the utero-vaginal tumour itself is concerned, precisely analogous information, with the important additions, however, that it detects the presentation and actual progress the case has made, and is making under the action at the time going forwards, from which, inferences of the first consequence have to be drawn These, however, it is not necessary here to specify.

The contraction of the uterus, *when strictly normal*, is independent of volition, and not necessarily attended by painful sensation; for at the commencement of the paroxysm, either an abdominal or vaginal examination will detect strong contraction before the patient is in any degree aware of its supervention; it is only when a forcible pressure is made on the parts constituting the passage, that she becomes conscious of it, and then the sensation is analagous with what accompanies ordinary fæcal and urinary evacuation. The uterus is therefore entitled to be regarded, not only as an involuntary, but as an insensible organ.

Independently of the above, other arguments may be adduced to show that *pain* is not an absolute or necessary concomitant of parturition. Those writers who have advocated the contrary with respect to the human female, admit that the lower animals are exempt from it, and which they have attempted to account for by referring to a distinction in the structures concerned.

"Human parturition, from the mechanism of parts concerned, must be difficult, and that of animals, from its nature, is and must be easy."†

If this mechanism gave rise to necessary difficulty in women, as it is precisely or nearly the same in all women, they ought all to *experience precisely or nearly, quoad hoc, the same degree of pain or difficulty*. This, however, is not the case; and even the same woman will in one labour experience an excess of pain and protraction, and in another it will be quick and easy, the difference in the two cases depending on physical and not mechanical causes. Again, if the theory were correct, other animals ought to be exempt from certain difficulties to which women are liable, which also is not the case; for when civilized or domesticated, they occasionally bring forth their young with pain and difficulty. Thus it is well known that the forest varieties of sheep are much safer in yeaning than the more cultivated breeds. The author has known two instances of cats, who had previously expelled their young with facility, suffering intense pain in parturition, one of them dying in consequence, and the other relieved by the use of friction.

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* Treatise on Midwifery, first ed., p. 24; second edition, p. 7, &c.

† London Practice of Midwifery, p. 124.

An unyielding state of the soft parts constituting the passage has been generally considered among the more influential causes of pain in parturition; and it cannot be denied that under an abnormal or morbid condition their resistance cannot be overcome without more or less painful sensation being induced; but if this necessarily took place under healthy states, no woman in health could escape it; and yet we find in many instances, and even with respect to whole nations, that parturition is almost entirely exempt from pain. In fact, the soft parts are by nature adapted to bear considerable distension without material distress; even the os uteri, in ordinary labour, may frequently be stimulated with the finger, without inducing pain, as the author has frequently noticed.

There are a few points relative to uterine action, which tend to practical utility. When the os uteri is well dilated, the membranes may be expected to rupture; if this be much delayed, it is proper to break them; but it should only be done while the contraction is at its greatest intensity, and if it has commenced receding, should be deferred until the next paroxysm. The reason of this is, that in the one case the uterus remains closed on its contents, and its action will soon repeat; while in the other, the liquor amnii escaping, it is left with a proportionate vacuity, which acts as an equivalent to a removal of insensible contraction, with a corresponding diminution of succeeding uterine action, sufficient to suspend the progress of the case for a greater or less period, or until the uterine fibres have recovered their tone.

The membranes being ruptured, the head of the child descends through the os uteri into the vagina, and, by the increased stimulus, excites the mucous follicles to secrete a greater quantity of lubricating fluid, which materially facilitates the delivery. If this be defective, as will frequently be the case, from various causes, and particularly the one just recited, the practice of introducing lubricating unguents is so far founded on a wrong principle, the more important object to be held in view being to *increase uterine action*, which, restoring the pressure on the mucous surface, the lubricity soon returns.

Upon nearly analogous principles, it is essential, the child's head having been expelled, not to allow the remaining parts of its body to be hastily drawn away, or at least without the concurrence of uterine contraction; for this will necessarily leave behind a proportionate vacuity within the womb, which is not unlikely to interfere with the subsequent expulsion of the placenta, and may not only occasion retention of the after-birth, but induce hæmorrhage or hour-glass contraction. Let it therefore be an invariable rule to retard, and not to hasten, the delivery of the body of the child. In the delivery of the placenta, if it be suddenly removed, the membranes which ought to remain attached to it will be liable to be more or less broken off, and left behind within the uterus, where, by their irritation, they will give rise to severe after-pains, an occurrence which may in great measure be prevented by deliberately drawing out the whole of them in an entire state.

It is partly to secure the above proper contraction of the uterus that the use of a properly-adjusted bandage around the abdomen of the patient is essential throughout the whole of the process. The appliance of the bandage was formerly only recommended after the labour was finished; and the author believes that he was the first who adopted its use during the process. He generally applies it immediately on entering the patient's chamber, and tightens it from time to time, as the case proceeds; and particularly after the head and body of the child, and the placenta, have been expelled. His patients generally derive great comfort from its use; and in his practice placental difficulties and after-pains have been comparatively unknown.

The exciting causes of labour.—A variety of interesting points connected with the process of a natural or normal labour having thus been considered it is now proposed to attempt an explanation of those causes which more immediately excite the parturient or expulsatory action of the uterus.

Previously to the author's publication, in the year 1819, little or nothing satisfactory was known of the exciting causes of labour; so that even the great Haller had piously attributed its supervention "to the will of God." One of the best writers at the commencement of the present century, Dr. Burns, says, in reference to the subject that "it can do no good to enter into the investigation."* The more philosophic Denman, however, conceived that this cause might "involve the reason why the uterus ever contracts at all, and lead to important practical results;"† he does not, however, appear to have arrived at any satisfactory result from any investigation he might in consequence have entered upon.

In bringing forward the doctrine of orificial irritation as the exciting cause of labour, the author did not at the time lay claim to originality, inasmuch as it had previously been conjectured that labour might possibly be excited by some stimulus or irritation applied to the mouth of the womb; but this opinion was supported by no positive facts, nor was it attempted to deduce any useful or practical results from it; in these respects at least the author may lay claim to originality, and he humbly conceives that his efforts have been the means of introducing improvements, both physiological and practical, into the science of midwifery.

The doctrine of orificial irritation is suggested by various analogies with respect to other expulsatory organs which are excited into action by appropriate stimuli applied to their orificial parts; as, for instance, the bladder and rectum, organs, like the uterus, intended to receive, retain for a time, and afterwards expel their contents: to accomplish properly these functions, they are furnished with structures, termed sphincters, placed near their evacuating orifices, which not only serve to enable them to retain their contents until the proper time for expulsion arrives, but, by virtue of their peculiar sensibility, determines them to assume expulsive action. The first perception of the want or necessity to evacuate them is always felt in the situations of their sphincters, and, indeed, the action of the expelling muscles admits of being called forth artificially; thus nurses procure stools with costive children by tickling the sphincter ani with a piece of twisted paper; and it is well known that the act of micturition will be induced by a mechanical irritation applied to the neck or sphincter of the bladder, as by passing a bougie through it. A great variety of other functions or actions, influenced by more or less analogous principles, might be adduced.

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* Burns, 4th. ed., p 249.

† Denman, Chap. v, Lecture 11.

The above principles admit of being applied to the uterine system, the cervix of which possesses a two-fold function—that is, its posterior portion, previously to obliteration, acts as a barrier to prevent the contents of the uterus from coming into contiguity with the anterior or orificial portion, and thus has the effect of deferring the supervention of labour until the proper time has arrived; while after that obliteration, the sensitive orificial parts being now subjected to the irritation of the presenting parts, a stimulation of the former is thereby induced, the effect of which, in a manner to be hereafter described, is then transferred to the uterine muscles, so as to give rise to those contractions of them which constitute active labours;—nay, in conformity with these views, the action of the uterus admits of being artificially and even prematurely excited by other stimuli applied directly to the mouth of the womb.

Under our at present imperfect knowledge of the nature of nervous influences, it may be difficult to explain the precise manner in which the above impressions on the orificial nerves are propagated to the uterine muscles; it is probably, however, not by direct continuity of nerves from one to the other, but that the nerves implicated belong to two systems; the one comprising nerves of sensation or excitement, the other of motion, between which, at present, anatomical investigation has exhibited no decided difference; and that the connexion between the two is through the intermedia of certain ganglionic structures, which are doubtless influential in producing the resulting effects. The above view, which will in a future paper be more fully prosecuted, may at this time be usefully illustrated by the following diagram,

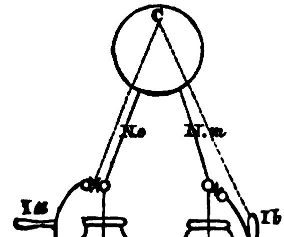

Diagram illustrative of Excito-motory Action.

A, an organ of sensation, charged with nervous (electric?) principle, and intended to be primarily affected.

B, an organ of motion, also charged with nervous principle; to be secondarily affected.

C, ganglionic or cerebral structures, (nervous centre,) with which the above organs are respectively connected by,

N e, an *afferent* nerve of *sensation*; and,

N m, an *afferent* nerve of *motion*.

The *tout ensemble* of the above constitutes what has been termed a *nervous arc*, and is fitted to produce the phenomena of excito-motory action. Now let a primary irritation, stimulus, or exciting cause, represented by I *a*, be applied to the organ *A*; an action,*, is induced, the effect or sensation of which, marked ....s, is carried to *C*, where, affecting the nervous centre, it gives rise to a secondary irritation, I *b*, which being conveyed by *N m* to the secondary organ *B*, throws it into *motory action*; the whole series of effects being propagated from the periphery *A*, through the centre of the arc *C*, to the more distant periphery *B*.

founded on the presumed analogy between the nervous and electric principles.

The importance of the above theory of uterine action, whether taken in a physiological or practical point of view, cannot be too much insisted on.

Physiologically, it may be regarded as explanatory of the reason why labour comes on normally at the end of the ninth month of pregnancy, inasmuch as such supervention is a necessary consequence of the obliteration of the cervix, in the manner which has been described. Dr. Tyler Smith, in a recent work on Parturition, has ingeniously considered the supervention of labour at this time as connected with the recurrence of the tenth menstrual period after impregnation, but has failed to show that any actual maturation of ovules, on which the menstruating function depends, goes on during utero-gestation. On the contrary, it is more conformable with general facts observed with respect to vital functions, that the excessive uterine actions during pregnancy would tend to diminish, if not entirely supersede, the ovarian actions; and if so, the theory can only be regarded as suppositive. Dr. Rigby, however, appears to have advocated a similar opinion previously to the publication of Dr. Tyler Smith, and regards it "as illustrating the laws on which the duration of pregnancy depends;" and yet he admits that the number of catamenial periods during pregnancy "will not influence the actual duration of time, as this will depend more immediately on the size and *weight* of the contents (of the uterus")* This admission, that the gravitation of the uterine contents may have an important influence on the production of labour, is strongly corroborative of the author's views.

The theory also throws considerable light on the many modifications observable with respect to the commencement of labour. Thus, if insensible contraction be induced in any considerable degree before the natural obliteration of the cervix has taken place—a circumstance which would eventually be the result of a premature evacuation of the liquor amnii, as well as other causes—it may give rise to so much additional pressure or irritation in the vicinity of the cervical parts as to produce a premature obliteration of the cervix, and consequent premature labour; indeed, such means are not unfrequently resorted to in practice. On the contrary, although the cervix may be fully obliterated, if the insensible contraction be delayed or weakened, labour will be postponed beyond the natural period; an instance of this is occasionally observable when, in women who have had many children, the utero-abdominal tumour becomes pendulous, so that its contents, instead of gravitating on and properly irritating the orificial cervical parts, impinge on the os pubis; in such cases labour will be considerably postponed.† Again, the excitement of labour will be modified by the existing sensibility of the orificial parts; if this be highly sensitive, like the hair-trigger of a gun, the slightest irritation or stimulus will affect it and produce labour; while, if that sensibility be of a low grade, a considerable pressure will be requisite to produce the effect.

Lastly, an important result is, that if the cervix were not interposed, during utero-gestation, as a barrier between the body of the uterus and its orifice, the grand object of generation would be defeated, for there would be a perpetual risk of premature action. The gradual manner in which nature removes this barrier affords an interesting example of the provident care of the all-wise Creator.

In a *practical* point of view, the doctrine of orificial irritation affords, even before labour has come on, a means of exciting the uterus to expulsive action, when desirable. This may be accomplished by making a permanent pressure with a bandage on the utero-abdominal tumour, the effect of which is, not only to induce more or less insensible contraction, but at the same time to determine the presenting parts more forcibly on the os uteri. In concurrence with this bandage, a firm pressure may also be made by placing one hand on the abdomen, so as to direct the uterine contents in the direction of the axis of the superior aperture of the pelvis; while the finger of the other hand, passed *per vaginam*, applies a gentle, and in some cases even a vigorous, pressure or friction on the orificial or cervical parts of the uterus. These means promise to be successful in inducing premature labour at the wished-for time, in cases of contracted or distorted pelvis; and, by adopting them, the author has succeeded in bringing on powerful uterine contraction, in cases of placenta prævia, before the hæmorrhage has gone on to a dangerous degree, and thereby reduced the case to a pure and happily terminating case of natural labour.

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* Rigby's System of Midwifery, (1844,) pp. 85 and 86.

† The author's Evidence in the Gardner Peerage Case, 1825.

But the above means admit of being employed with equal, if not more advantage, in all cases of active labour, over which they are capable of exerting an important control, so as to ensure that vigour of uterine contraction which is essential to a comparatively speedy and felicitous delivery. It is true that many cases are so normal and satisfactory as to render their adoption unnecessary. It is therefore in those abnormal cases fraught with more or less difficulty or protraction that their use should be resorted to; and here their effect is sometimes almost miraculous. Gentleness and tact are, however, requisite in the application; and one general rule should be observed—namely, either to desist, or modify the degree of pressure, whenever it is productive of apparent distress, an effect which rarely happens.

It was not the intention of the author to illustrate the present papers with cases; but the following one, out of numerous others, is so interesting, that he cannot refrain from inserting it. He was called some few years back, by his friend and former pupil, Mr. John Dobson, then residing at Highgate, to a woman living near Finchley common, who, in several previous and long-protracted labours, had always been delivered by means of the crotchet, in consequence, it was supposed, of a highly-contracted pelvis. She was at her full time, and in addition to the previous supposed difficulty, an arm of the child protruded in front of the head. Two of Mr. Dobson's professional brethren of Highgate had been called in consultation, and when I arrived, one of them had been attempting to return the arm. On examination, the author found the case as described, with the os uteri well dilated; he could not, however, detect any contraction of the pelvis which he deemed incompatible with a natural delivery. His first attention was directed to return the arm, in which he happily succeeded; and then, without removing his finger from the vagina, he commenced stimulating the os uteri, at the same time passing his left hand to the abdomen, upon which he applied vigorous friction and pressure. In little more than a minute a powerful paroxysm of uterine action came on, which drove the head on the perinæum and partly through the os externum, and the next pain completed the delivery. The cause of protraction in this case, and doubtless in all the preceding ones, was not mechanical, but physical, and depended on principles to be hereafter considered; and this physical cause was immediately removed by acting on the principles of treatment above advocated.

In cases of protracted labour from defective uterine energy, the stimulus of the finger, combined with abdominal friction and pressure, will often at once reproduce the full vigour of uterine action; nay, in cases of an apparently unyielding state of the passages, or even of slighter relative disproportion between the pelvis and child's head, they will tend happily to increase the expulsive force, so as to obviate the otherwise probable necessity of having recourse to instrumental means; and lastly, in making use of instruments, the stimulus which is then necessarily applied will occasionally be the means of inducing such increase of uterine action as to assist, if not supersede, the tractile force.

The whole of the above assertions, strong and novel as they may appear, have not been mere deductions from theory, but have been effectively demonstrated in the author's practice; and although many exclaim against them as instances of "meddlesome midwifery," the treatment recommended, when used with tact, delicacy, and judgment, is not only safe, but capable of abridging materially the sufferings of the patient.

Abnormal Parturition.—It is now proposed to enter upon those deviations from normal parturition, by which the process of labour is rendered more or less difficult or unpropitious. This important subject refers itself under the following heads:—

1st. Where the deviation connects itself with the exciting causes of uterine action.

2nd. Where it depends on morbid or unnatural actions of the organs concerned.

3rd. Where the expelling powers are rendered ineffectual in consequence of mechanical obstruction.

4th. Where the labour is complicated with certain accidental circumstances.

1. *Deviations connected with the exciting causes of uterine action.*—The more important results occurring under the present head of deviations, are diminished or suspended actions of the uterus, which may influence the case either previously to the commencement of labour, or subsequently, during any portion of the process. The consideration of the subject may be arranged under two heads—viz.,

1. *a.* Where there is a deficiency of the nervous power necessary to keep up the actions of the uterus.

2. *b.* Where the stimulus or irritation applied to the os uteri is insufficient to excite the proper contractions of the uterine muscles.

1. *a. Deficiency of nervous power.*—The nature of that nervous principle which supports the vital functions in general, and the action of the uterus at the time of labour in particular, has not as yet been satisfactorily developed; it is, probably, however, a production or secretion from the grey vesicular matter found in all the various nervous centres, whether spino-cerebral or ganglionic.

Of late years many physiologists have assumed that the nervous power manifests a strong analogy, if not an identity, with the electric principle. If this be true, it might be inferred that in its nature it is *homogeneous*, or of precisely the same character, to whatever organs it is determined. It is doubtful, however, whether this view be strictly correct; and, in fact, essential differences are detected with respect to the nervous and electric fluids; at all events, it is not impossible that variations in its constitution may exist, in accordance with the different nature or functions of the organs to be influenced, by virtue of which it produces the peculiar actions which those organs exhibit, such variations being induced by the operation of the ganglionic structures from which it is more immediately determined to them. Thus, with respect to the testes of the male, the result is the secretion of male seminal matter; and to the ovaries of the female, of female seminal principle; which must be essentially different from each other;[*] or, possibly, the diversity of functions in different organs may in great measure depend on differences in their structures; but that this is the sole efficient cause has certainly never been proved.

But whether the nervous principle be homogeneous or not, it cannot be denied that its influence with respect to the various organs of the system manifests a great diversity of effects; amongst the more remarkable of these is that principle of association which renders it almost impossible to produce an action in any one organ without others more or less participating in it. This property, long since noticed by medical writers, and, according to its various manifestations, designated by them under the names of "association," "sympathy," and "metastasis," has of late years been designated as "reflex or diastaltic action," by Dr. Marshall Hall, who, by a series of careful dissections and observations, has endeavored to explain the phenomena as dependent on the operation or influence of nervous fibrilæ, afferent and efferent, leading to or from the various nervous centres intermediate to the respective organs implicated in the associations in question. Whether this term, "reflex or diastaltic action," be unexceptionable or not, it is not now intended to inquire. That of "association," however, best suits the author's views in the present instance, and therefore he will continue to use it in a sense analogous with reflex action.

But whatever may be the precise nature of the nervous principle, the sources from whence it is generated, or the manner in which it is determined to the various organs, it is certain that the quantity of its production is not unlimited; whenever an action takes place, more or less of it is expended in supporting that action; and as from its highly subtle nature, resembling, at least, the electric or magnetic fluids, it is endued with the property of *diffusibility*, it follows that an excessive expenditure in one organ will be followed by a tendency to diminution in other organs, and more particularly in those which are directly associated with it. In these categories are involved the principles of those kinds of defective uterine actions now under consideration; for if the nervous power be either generated in a minor degree, or too largely expended on other organs, the actions of the uterus will fail to be properly called forth. Such states of faulty action admit of being induced by numerous causes, but it is only intended to notice some of the more important ones, as—

A. *Mental emotions.*—Every function of the mind or intellectual brain is supported by nervous power, and, it is probable, if not certain, by larger expenditure than is requisite for the maintenance of other functions in the animal and organic systems; in consequence, any abnormal actions in the mind never fail to influence more or less the actions of the uterus in labour. The mental emotions may be classed under the depressing, the highly exciting, and the moderately exciting passions.

a. Depressing passions exert an important influence with respect to labour, and for the reason that, independently of their being calculated to produce a languid circulation in the brain, and occasionally defective secretion of its nervous power, they give rise to a consequent necessity for its derivation from other parts of the system. The effect of this is, as respects the uterus, that the tonicity, if it may be so called, of its muscular fibres is lessened, and the insensible contraction is diminished, as well as the sensitiveness of the orificial parts; and the stimulus applied to the latter, which is requisite to excite the paroxysms, becomes inefficient, and the general result is, that the labour goes off, or becomes more or less suspended. There are few individuals accustomed to the lying-in chamber who have not witnessed the latter effect produced by the communication to the patient of a distressing piece of intelligence, or from the supervention of anxiety or despondency on her part, even when the case has previously been proceeding in the most satisfactory manner.

b. Highly exciting passions.—These are also very influential over the actions of the uterus. In the preceding case, the deficiency of action may be regarded as of a *direct* kind; in the present one, as *indirect*. All abnormal expenditure of nervous power in any given organ is uniformly followed by more or less exhaustion in other organs, and consequently, during labour, tends to induce a deficiency of uterine action. Upon this principle, highly exciting mental affections, such as anger, surprise, and even joy, are capable of influencing labour unfavourably, by deriving from the uterus that energy which ought to support its proper function, and inducing eventually effects similar to what have been described as resulting from the directly depressing passions.

It may be regarded as an interesting confirmation of the above view, that the moderately exciting passions, such as hope and confidence, instead of being unpropitious, are favourable to the action of the uterus, inasmuch as they tend to promote a healthy production of nervous power in the brain, and do not, by their immediate influence, inordinately expend it.

B. *Various accidental causes* which are capable of producing direct or indirect sedative effects, may render the uterine actions defective. Amongst these may be named, loss of blood, abstinence from food, cold, the too free administration of stimuli, such as wine, spirits, opium, &c., and the exhaustion consequent on long and painfully protracted labour, from whatever cause it may have originated,—all of which have a tendency to diminish or suspend the proper actions of the uterus, in conformity with the principles above advocated.

2. *b. Deficient uterine excitement.*—The stimulus or irritation which should be normally applied to the os uteri is frequently insufficient to excite the muscular contractions of the uterus, in which case the labour may not come on at the time expected; or, having come on, the paroxysms will be found only at distant intervals, and at the same time inefficient. A variety of causes or circumstances may be influential in producing it, as—

a. A want of proper insensible contraction, and consequent stimulus on the orificial parts, and which may be dependent on various circumstances—for instance, an abnormal irritability of the os uteri itself.

b. Premature evacuation of the liquor amnii, which will necessarily leave the uterus, for a time, in a relaxed state, until the tension and pressure on the orificial parts have been restored; hence the importance of the rule previously advanced, (in a former number of The Lancet,) with respect to artificial rupture of the membranes.

c. An abnormal presentation of the child's head or the presenting parts to the orificial parts, such as is frequently the result of malpresentation or deformity of the pelvis; or an oblique position of the os uteri, in which case it will be found occasionally placed near the promontory of the sacrum, out of the reach of the finger, or nearly so, and entirely removed from the axis of gravitation. This obliquity is not improbably innate or original in the constitution of the female, and capable of being transmitted hereditarily;

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[*] For an original speculation involving the above category, the reader is referred to an essay "On the Nature and Operations of the Imponderable Bodies, by Ignotus, contained in the 32d volume of Newton's Journal of the Arts, Sciences, &c., pp. 369, &c., 1848.

hence women whose mothers have experienced this kind of labour will themselves be incidental to it; where it exists, there will always be lingering labour at the commencement, and the progress will be unsatisfactory, until the os uteri becomes more or less dilated, and centrical in its position.

d. Another cause is a pendulous state of the utero-abdominal tumour, which occasionally overhangs the pubis, and reaches almost to the knees of the patient, particularly in multiparous women; here the pressure downwards of the uterine contents is intercepted by the pubis, so as to fail to excite the os uteri; in such cases, labour may be almost indefinitely postponed.*

The most important and general principles of treatment in all the above states of defective action, are involved in what has been so lately advocated in The Lancet, with respect to the excitement of labour. In many cases, indeed, all that will be necessary is to wait with patience for the supervention of a spontaneous and renewed energy, taking care, in the interim, to regulate properly the mind of the patient; everything possible should be done to obviate depressing emotions, and encourage hope and confidence. To further these indications, the lying-in room ought to be kept at a moderate temperature; mild and nourishing refreshment should alone be administered, avoiding all excessive stimuli, particularly in the form of spirits, wine, and beer, or highly stimulating medicines; the object being not to over-excite and eventually depress the system. Otherwise, if nature should not satisfactorily rally, and the defective action continues, so as from circumstances to make an active treatment desirable, the following plan, from whatever causes the delay may be induced, may be adopted—namely, the firm application of the bandage, combined with friction and orificial stimulus; and even a cautious and delicate attempt to assist the dilatation of the os uteri with the finger will not unfrequently be productive of the most satisfactory results.

If the defective action be connected with an oblique position of the os uteri, the finger may be introduced, and an attempt made to draw it down into the axis of the pelvis, which, independently of such result, will contribute to dilate the orifice and promote more vigorous action. The author has met with many cases in which, by the means above detailed, he has been enabled to terminate the labour both speedily and happily, when otherwise the delivery would probably have been continued and distressingly lingering.

When a pendulous abdomen delays the supervention of labour, a properly adjusted bandage, so contrived as to bring the presenting part from over the pubis into the axis of the pelvis, has, within a few hours, been followed by energetic labour.

(*To be continued.*)

CASES OF HERNIA.

By B. B. Cooper, Esq., F.R.S.

I have lately read, in one of the French medical periodicals, an account of some cases of irreducible hernia, of long standing, being rendered reducible by a system of constitutional and topical treatment, which the author, M. Malgaigne, appears to consider new to the profession. It is not from any wish to provoke controversy, nor from a spirit of rivalry, that I enter upon this subject; but I feel it due to myself to state, and to endeavor to show, by the following cases, that I had devised and employed this plan of treatment as far back as 1837.

I was first induced to pay particular attention to the subject of irreducible hernia in consequence of being frequently called upon to perform the operation for hernia in cases where the hernia had previously remained irreducible for a longer or shorter period, without, however, producing any interference with the proper performance of the function of the bowels, but in which, from some cause, sudden obstruction had arisen, and symptoms of so urgent a character displayed themselves, as to require immediate relief. Some of such cases were capable of being relieved by the employment of local and constitutional treatment alone; in others, on the contrary, it was indispensably necessary to resort to the operation. In the patients who were relieved of the symptoms of obstruction without operation, the hernia remained irreducible, and was therefore always liable to become again obstructed. In such cases I could only recommend great caution as to the general mode of living; and the employment of some mechanical protection to the tumour, so that it might be guarded as far as possible from external injury. This was, after all, but very unsatisfactory, as the patient, under these circumstances, was still left exposed to continual danger from accidental causes. I therefore determined upon attempting to convert these irreducible into reducible herniæ, by enjoining the recumbent position, maintained for a long time; a strict system of diet; the use of purgatives and lowering medicines; the application of cold to the tumour, and the frequent gentle employment of the taxis. The result of this treatment will be seen in the cases which I shall now relate.

The first occurred in 1837. A gentleman, named W——, came to my house to consult me respecting his son, a lad of seventeen, who was afflicted with an irreducible congenital hernia, which had become irreducible about two months before he was brought to me. During these two months he had twice suffered severely from obstruction in the descended bowel.

In this case I attempted to reduce the hernia by the taxis; but failing in this, I adopted the following treatment:—I first ordered an enema to empty the lower bowels; then a purgative pill at night, with a saline purgative draught in the morning. His bowels were freely opened by these means; but as the hernia still remained irreducible, I ordered that he should keep himself in the recumbent position, with his shoulders raised by pillows, and his thighs bent upon the pelvis, so that the muscles of the abdomen might be perfectly relaxed; ice was frequently applied to the surface of the tumour; he was kept upon very low diet, with the bowels moderately open. This treatment was continued for nineteen days; nothing remarkable occurred during that time; but on the nineteenth day the hernia was reduced almost accidentally by the hand of the patient himself, who was feeling to ascertain whether the tumour had diminished in size. A truss was at once applied, and from that time I never heard that the hernia had descended again.

In 1838 a patient was sent to me by Mr. Hutchinson, of Witham, in Essex, with a large irreducible scrotal hernia. It had been irreducible about three months, during which time he had only once or twice suffered from any symptom of intestinal obstruction. The inconvenience arising from the size of the tumour, was, however, so great, that he was very anxious to have any operation performed for its reduction. I recommended in this case a plan of treatment exactly similar to that last described; but in addition, as the patient was very plethoric, I ordered that he should first be bled from the arm; but either from fearing the restrictions required in my method, which I had explained to him, or perhaps from some reason connected with his avocation, (that of a farmer,) he did not at once submit himself to the treatment, although at first he appeared so desirous of doing so. After about three weeks, however, he placed himself under Mr. Hutchinson's care, and adhered to all my directions with the greatest exactness and patience. He lay for fifteen days, and on the evening of the fifteenth, Mr. Hutchinson easily reduced the hernia by gentle taxis. A truss was applied, and there was never afterwards, to my knowledge, any symptom of the hernia again returning.

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* See Evidence in the Gardner Peerage case.

My late friend, Dr. Badely, of Chelmsford, hearing of the result of the treatment in the last case, at the end of the same year sent me an old gentleman, who had had a scrotal hernia for four years. During this time his life had once been in great danger from protracted obstruction of the protruded bowel. I described to Dr. Badely the treatment I had adopted in Mr. Hutchinson's case. I directed him to keep his patient recumbent, to freely evacuate his bowels, to apply ice to the tumour, and to limit him to very low diet. It was five weeks before the tumour became reducible in this case; it then went up suddenly as the patient was getting up out of a chair, in which he had been sitting whilst his bed was making. In this case, as in the others, a truss was put on at once, and, four years after, the patient told me that the hernia had never returned. I had subsequently a second case of this kind from Dr. Badely, which was treated upon the same principle, and terminated equally successfully I have published an account of this case in my "Lectures on Surgery."

In January, 1852, W. M——, aged twenty-nine, a coal-porter, temperate, and in good health, was admitted into Guy's Hospital with an irreducible hernia on the right side of the scrotum. He stated that the hernia had existed for six years; but that four days before he applied to be admitted, the tumour became suddenly much larger, and that for three days he had suffered all the symptoms of strangulated hernia. When placed in the ward, an enema was administered, and he was put into a hot bath. By means of the taxis the freshly-protruded portion of bowel was easily returned into the abdomen; but the old irreducible part still remained, not less than a goose's egg in size, as it had been indeed during the previous six years. I considered this an excellent case upon which to try my treatment for the purpose of rendering the whole reducible. I accordingly confined the patient to bed, and employed all the means I have already spoken of, and, besides these, in this case I prescribed small doses of blue pill and tartarized antimony. I have done this in many cases, and should always give slightly nauseating medicines when I had reason to believe that the hernial sac contained fat; but in this case I judged, from the peculiar feel of the tumour, that a considerable quantity of omentum had protruded with the intestine; and the blue pill and tartarized antimony were given with the view of favouring the absorption of fat. This patient continued perseveringly to submit to the plan of treatment laid down for nearly four months, the tumour gradually diminishing; ultimately it went up with very little difficulty, and a truss being applied, as in the other cases, the patient was discharged from the hospital, cured.

The conversion of an irreducible into a reducible hernia, is a matter of no slight importance. It is true that a person who is the subject of irreducible hernia may long continue in perfect health, but he is always in danger of the displaced portion of intestine becoming suddenly obstructed, and from its liability to injury from external violence, even after a very lengthened period.

In 1837 I operated upon an old woman, seventy-nine years of age, who had an irreducible umbilical hernia for fifty years. During the whole of that time she had suffered no inconvenience, excepting from the size of the tumour; but at length, from the exertion of coughing, a fresh protrusion occurred, and became at once strangulated. I performed the operation, not opening the hernial sac, however, nor interfering with the old irreducible hernia. The patient perfectly recovered.

The subjects of this condition feeling themselves, as they believe, in every respect in health, cannot easily be brought to a consciousness of the state of jeopardy in which they are living, and they are but little disposed to submit to the lengthened and irksome treatment required to overcome what they are but too apt to consider an unimportant disorder. It is the duty of the surgeon to particularly impress upon the mind of the patient in such cases the critical nature of his state, and the imperative necessity for his submitting himself to the means necessary to restore him to safety. The following is a case which shows the danger which may accrue to a patient, even after the hernia is rendered reducible, if proper means and precautions be not taken to prevent it from again passing into the irreducible condition:—

Early in October, 1851, Mr. Clarke, of Hornsey, brought me a lady, aged fifty, with a femoral hernia, which had been irreducible for nearly two years, during which period she had been several times attacked by symptoms of incarceration or obstruction: she was brought to me by Mr. Clarke, on account of having just recovered from one of these attacks. I recommended that she should be confined to the recumbent position, kept upon very low diet, the bowels gently opened, and that she should occasionally have small doses of tartarized antimony, to keep her in a state of nausea for a day or two; I also ordered that ice should be frequently applied to the tumour, gentle taxis being also occasionally employed. This treatment was continued for a month, at the end of which time the hernia spontaneously receded into the abdomen. A truss was applied, but not being strong enough, an additional spring was fixed to it; for upwards of two months she remained perfectly well and comfortable; she then unadvisedly removed the additional spring from the truss, and in a few days after, the hernia again came down, and this was immediately followed by all the symptoms of acute strangulation. This happened on Saturday, the 13th of March, 1852. On Wednesday, March the 17th, I was called in by Mr. Clarke, and, from the condition of the hernia, determined at once upon performing the operation.

A peculiar feature occurred in this case; the patient brought up a large quantity of blood from the stomach. This was perhaps attributable to the violent and continued retching which she had suffered. The quantity of blood was very considerable—so much so as to create some alarm. In performing the operation, as the intestine had been so long down, and was so severely strangulated, I thought it best to open the sac. I found the constriction extremely tight, offering very great difficulty in passing the director beneath it. The intestine was very dark in colour, but still elastic to the touch. I therefore returned it into the abdomen, and was enabled to do this with considerable facility, and with gentle manipulation, as there were no adhesions. The patient did not, however, appear to derive the usual extent of relief from the removal of the constriction from the intestine, although there was no approach to anything like collapse.

On the morning of the 19th I again saw her. Her bowels had been copiously opened spontaneously, about four hours after the operation. The sickness had entirely ceased; she had, indeed, only vomited once, but then she brought up again a large quantity of blood. When I saw her, her pulse was about 96, full, and fairly compressible; there was no pain upon pressure on any part of the abdomen; her countenance was free from anxiety; and therefore there remained not a single symptom to create alarm excepting the loss of blood by hæmatemesis. I ordered the sesquichloride of iron and hyoscyamus; and as she complained of thirst, I allowed her to drink cold lemonade. From this time she continued to improve, and a few days after, I left her quite well, and she has remained in perfect health ever since.

In looking over my case-book, to find the preceding cases, I have met with others in which the symptoms were of an anomalous character, deviating very much from the usual course, and consequently possessing considerable interest in a practical point of view. Some of these seem to present considerations in many respects analogous to those existing in the treatment I have been describing, as, for instance, in the cure of strangulated hernia by means of opium. It may be said that strangulated hernia and obstructed irreducible hernia are in principle the same thing, the only difference existing in the urgency of the symptoms in the first. Large doses of opium given in strangulated hernia will not infrequently produce a precisely similar effect to that of the treatment of irreducible hernia detailed in my first cases. The opium seems to produce these effects by diminishing the irritability of the intestinal canal and checking vomiting, relaxing at the same time the constriction of the bowel by lowering the general tone of the muscular system. Under such circumstances, the strangulated hernia will often become reducible, being brought under the influence of the constitutional remedy. In strangulated hernia I should always recommend the operation by preference, but it sometimes happens that patients will not submit to the operation; in that case I resort to the treatment with opium. Many of such cases have happened in my practice; some I have already published. I shall now relate two or three which bear upon the point in question.

In April, 1847, Mr. Berry, of Wilmington-square, sent for me to see a lady, aged sixty, living at Pentonville, who, while reaching to a high shelf, was seized with a sudden increase of an old irreducible femoral hernia. I found her suffering from urgent symptoms of strangulated hernia. I attempted to reduce the freshly-descended portion of bowel by the taxis, but was unsuccessful; I therefore immediately recommended the performance of the operation, but the patient refused to submit to it. Under the circumstances I ordered her to take at once three grains of solid opium, two grains more to be taken in a couple of hours, should the symptoms remain unrelieved. The second dose was given, when the sickness gradually subsided, the tumour became flaccid and resumed its former size, the freshly-protruded portion of bowel having returned within the abdomen. The next morning the bowels were freely opened; a truss, with a hollow pad, which she had worn before upon the old hernia, was applied, and from that time she remained quite well.

This patient died of Asiatic cholera in the autumn of 1849.

Mr. Shelley, of Epsom, (formerly my dresser,) to whom I had spoken of the last case, was called in to a woman aged forty, who was the subject of a strangulated inguinal hernia, of three days' standing. She had constant stercoraceous vomiting. It was immediately proposed that the operation should be performed, but the patient declared that she would rather die; he therefore ordered her an immediate dose of two grains of opium, to be followed by one grain every two hours. The patient took eight doses, when the vomiting and pain ceased. An enema was given, which operated freely, and on the evening of the second day from the commencement of the treatment the hernia was reduced by very gentle taxis.

In January, 1848, I was called to see the wife of a Mr. C——, in the Hampstead-road; she was suffering from the symptoms of strangulated hernia. When I examined her, I found a small femoral hernia, which had descended for the first time the day before. I ordered the patient to be put into the hot bath, and to take calomel and opium to allay the sickness; also that a purgative enema should be administered immediately. I saw her again about ten hours after she had been treated as above. The sickness had then in some degree abated, but the bowels had not been relieved, and she was now suffering from retention of urine. I drew off the water with a catheter, and then proposed to perform the operation for the hernia: she determinedly refused to submit to the operation, and I therefore decided at once upon trying the opiate system of treatment. I ordered three grains of solid opium to be taken directly, and a grain every three hours until the sickness was subdued. The next morning I saw her about nine o'clock. She had taken three doses of the opium, the sickness had ceased, and the pain in the abdomen had also left her; the tumour itself was neither so tender to the touch, nor so tense as before the opium was taken; and the urine had been passed without difficulty. I now ordered that ice should be applied to the tumour, and that another purgative enema should be given. At ten P.M., I called again and found that she had passed a good motion; she was also perfectly free from pain. I tried to reduce the hernia by the taxis, but could not succeed; I desired, therefore, that she should remain in the recumbent posture, which she did during the whole of the next day, the ice being frequently applied to the hernia.

On the sixth day from the time of the hernia descending, she unexpectedly came to my house, to tell me that the night before, the hernia had gone up, by slight pressure from her own hand. Mr. Bigg, of Leicester square, applied a truss, and the patient has remained quite well up to the present time.

Mr. Shelley, whose name I have already mentioned, knowing that I had employed in many cases the opium treatment I have been describing, sent me the three following cases, showing the result of the treatment in his own practice. I give them in his own words:—

"In October, 1849, I was called to J. S——, aged thirty-eight, a tall, strong man, by occupation a groom; he had been ruptured some years before, and then wore a truss for a short time, but as the hernia never came down, he soon left it off. On the morning of my visit, he had again ruptured himself whilst lifting a heavy weight. He attempted to reduce the hernia, but could not succeed, and symptoms of strangulation coming on, he sent for me. I found a scrotal hernia on the right side, some sense of constriction at the epigastrium, and nausea. The hernia was very hard and tender at the neck. After trying the taxis for about an hour without producing any effect upon the tumour, I resolved to give opium. I gave three grains, and desired the patient to keep his bed. Four or five hours after, I again visited him. To my surprise, I found him sitting quietly by the kitchen fire. Upon my remonstrating with him for his imprudence, he replied that he was quite well now, for that he fell asleep soon after I left him, and when he awaked, he found the rupture softer, and tried to force it up. He succeeded without much difficulty; and I obtained a truss for him, which he still continues to wear."

"M. H——, aged forty-five, a married woman. At her last confinement, which took place about four years previously, she had a very difficult labour. After this, she noticed a small lump in her groin, but as it was not always present, she did not notice it very particularly. According to her own account, she was seized with violent griping pain in the stomach one evening whilst sitting at work. This continued with great severity, causing her to be bent double and to press her stomach with her hands; about five o'clock the next morning, sickness came on, and became stercoraceous after two or three days. She was first treated with aperients, and afterwards with tobacco enema. The taxis was also tried, but altogether without success. On the fourth day, Dr. Lane, of Ewell, was called in, and suggested the exhibition of opium in large doses, as the woman obstinately refused to submit to the operation. The opium had the desired effect of subduing the vomiting and relieving the collapse, and on the fifth day from the commencement of the attack, the rupture was reduced. The woman is now alive and well, but says she suffers from constipated bowels. She does not wear a truss, although she says there is sometimes a small lump in the groin; but it goes back again."

"May 21st, 1851.—I was called in by a neighboring practitioner to take charge of a case during his absence. The patient was a short, spare man, aged fifty. Early in the morning he had ruptured himself whilst straining at stool; the taxis had been employed unsuccessfully for three hours. The hernia was about the size of a walnut, hard and tender, from manipulation; countenance anxious, with a strong sensation of constriction at the epigastrium. Opium was immediately recommended. I gave at first a grain and a half, and half an hour after, another grain and a half. Having ineffectually tried the taxis, I left the patient, ordering a warm bath to be prepared. I soon returned, and found him fully under the influence of the opium. The constriction at the epigastrium, as well as the retching, was relieved. The patient had been dozing, and indeed could scarcely be kept awake. I again employed the taxis, and in a few minutes returned the hernia. He slept off the effects of the opium, and was soon able to return to his work, wearing a truss."

The following case was also communicated to me by Mr. Shelley:—

"Dr. Butler Lane, of Ewell, about two years ago was called to see a patient, who was suffering from irreducible hernia. He had been ruptured for some years, and always wore a truss. If ever the hernia descended, he laid himself down, and was soon able to reduce it. On this occasion, however, the hernia came down whilst he was lifting some straw, and the patient was unable to return it into the abdomen. After trying for some time, symptoms of strangulation came on, and Dr. Lane was called in. The taxis was now employed, but without benefit. Dr. Lane, therefore, gave him a large dose of opium, and left him in an easy chair in his surgery. He left him thus for about two hours, and upon his return found that in the mean time the man had succeeded in returning the hernia."

(To be continued.)

ON THE

EMPLOYMENT OF CHLOROFORM INJECTIONS IN THE TREATMENT OF GONORRHŒA.

By Henry Behrend, Esq., M.R.C.S., Eng.
Surgeon to the Liverpool Dispensaries.

I have much pleasure in bringing before the notice of the profession a new method of treating gonorrhœa, which, as far as my experience enables me to judge, bids fair to be equally well adapted for most of the varieties of this tedious and frequently intractable disorder. It consists in the employment of chloroform as an injection, without the use of any other remedial agent whatsoever, either constitutional or local, except, of course, in such cases as present complications demanding special treatment. In the first few cases in which I employed the chloroform, I directed it to be injected in its pure and unmixed form; but I soon found that the pain which it occasioned was too severe to be borne, though at no time were such complaints made of it as so frequently follow the use of the nitrate of silver. Accordingly, I now have it mixed with twice the quantity of mucilage; nor does its action appear less prompt from this diminution of strength. The method of injection is the usual one, no special directions being necessary. The frequency must depend upon circumstances. I have not as yet found it advisable to order it more than thrice a day, but recommend its employment once a day for at least four days after all discharge has ceased. Beyond the ordinary avoidance of stimulants, undue exposure, &c., no instructions whatever are needed; and in no instance in which I have as yet tried this plan has it been found necessary to confine the patient to the house, nor have any evil results followed the application of the chloroform to the diseased surface of the urethra.

My object in publishing the following cases is a desire that the value of the remedy may be tested by those who have equal opportunities with myself for the institution of such experiments in the field of practice opened by public appointments, as I am of opinion that the concurrent testimony of many is absolutely essential before any method of treatment, however satisfactory it may appear to individuals, should be considered as fully established.

Case 1.—Oct. 20, 1851: Mrs. F——, aged forty-eight, contracted gonorrhœa from her husband about a week ago, but has undergone no treatment. Ordered the chloroform, in its unmixed state, to be injected thrice a day; no medicine whatever to be taken. It caused violent smarting pain, which lasted about an hour after each injection; but no dysuria or other unpleasant symptom followed. The first day the discharge increased in quantity, and became more viscid; but on the second it had rapidly diminished; and on the third (Oct. 22) had almost ceased. The fourth day I ordered her to inject morning and evening; and on the fifth day the discharge had quite ceased. As a matter of precaution, she continued the employment of the chloroform every morning, until the tenth day, when, no trace of the disorder having recurred, she finally discontinued it.

Case 2. *Gleet.*—Jan 1, 1852: Martha B——, unmarried, thirty-two years of age, has had a gleet for twelve months, the discharge varying in quantity, but at present profuse. She has gone through the usual routine of treatment, but has scarcely given many of the remedies a fair chance, owing to irregular habits of life; is at present taking balsam of copaiba, and using injections of sulphate of zinc, from which she derives no benefit. Directed her to discontinue these, and inject with equal parts of chloroform and mucilage thrice a day.

Jan 5th.—The injection was painful, and at first increased the quantity and consistency of the discharge; but after the second day this became much less, and is now very scanty and thin. She suffers no other inconvenience, and is much elated at the prospect of recovery. The catamenia having come on, I deemed it prudent to suspend all treatment.

8th.—Last night the catamenia ceased; there is now a slight gleety discharge. Ordered to resume the injection.

12th.—Not much change; the injection causes severe but temporary pain. To use it half the strength for the future; that is, one part of chloroform to two of mucilage.

15th.—The discharge has quite ceased, and she is perfectly well.

19th.—Continued injecting once a day till this date; no return of the symptoms.

Case 3.—Jan 12, 1852: John S——, aged twenty-four, first perceived pain in micturition on the 8th inst.; very slight discharge, light-coloured, and thin; frequent desire to pass water, with much straining; the urine is occasionally bloody. Ordered a mixture of liquor potassæ, tincture of hyosciamus, and camphor mixture; and to inject thrice a day with one part of chloroform to two of mucilage.

Jan 15th.—Much improved, but slight discharge; the injection causes great pain for a minute or two.

19th.—Discharge quite ceased, and he is perfectly well, with the exception of a little œdema of the prepuce, which disappeared under the application of a saturnine lotion; no recurrence of the discharge.

Case 4.—April 29, 1852: Mrs. R——, aged forty-five, contracted gonorrhœa from her husband seven days ago; the discharge has gradually increased in quantity, in spite of a regular employment of the acetate-of-lead injection. Directed her to inject the chloroform of a similar strength to that used in the last case.

May 3d.—Discharge nearly ceased; all that now exists is an exceedingly small quantity of a colourless, watery fluid; no complaint of pain from the injection. To repeat it once a day.

10th.—Has been quite free from all discharge for five days.

CASE OF PUERPERAL CONVULSIONS FROM CEREBRAL CONGESTION, TREATED BY BLEEDING AND TARTARIZED ANTIMONY.

By J. B. Mawer, Esq., M.R.C.S.E. & L.S.A.

DISTRICT ACCOUCHEUR TO ST. MARY'S HOSPITAL.

I was called in a great hurry, at nine in the morning of the 3rd of March, to visit Mrs. C. B——, a strong muscular woman, of small stature, aged twenthree, a patient of the St. Mary's Maternity, who was in labour of her first child. On entering the room I found her in one of the most fearful paroxysms of puerperal convulsions I had ever witnessed. The face was frightfully distorted, and purple from congestion; bloody foam was issuing from the mouth; the tongue was bleeding and protruded, the eyes fixed and staring, and several attendants were vainly endeavouring to restrain her in bed. Feeling that not a moment was to be lost, I instantly proceeded to take blood from the arm, by making a large orifice, from which, in a very short space of time, forty ounces of blood flowed. I then waited a few minutes, hoping that some good effect would follow so copious and sudden a loss of blood, but had the mortification to see no favourable change in the frightful character of the symptoms. I therefore removed my thumb from the opening in the vein, where I had with much difficulty managed to keep it during the violent struggles of the patient, and allowed thirty ounces more to escape in the same rapid manner. This second bleeding had at once a marked and beneficial effect, as the convulsions almost immediately ceased, a more natural expression of countenance returned, and she was shortly restored to a condition of apparent consciousness. I then removed most of her hair, and applied a bladder half filled with pounded ice to the head, and bottles of hot water to her feet. On making the usual examination, I found the os uteri about half dilated, but exceedingly rigid and tense, as were also the external parts. Just at this time I had the satisfaction of seeing my friend Mr. Musgrave enter the room, followed shortly afterwards by Dr. Tyler Smith, whom I had sent for immediately on perceiving the serious nature of the case.

There was now almost an entire absence of uterine pain. The abdomen was carefully manipulated, but no movements of the fœtus could be excited or detected, though its rounded mass could be felt within the uterus. The fœtal heart could not be heard upon auscultation, so it was concluded that the fœtus was probably already dead. As there was a calm in the convulsions, it was resolved to delay the performance of turning or craniotomy until more imperatively called for. It was agreed that it would be desirable to rupture the membranes as soon as practicable, and allow the liquor amnii to escape, so as to diminish the uterine distension. As there was still much general excitement of system, the pulse numbering 110 in a minute and hard, and the os uteri and other tissues continuing very rigid, in spite of the previous depletion, it was felt necessary to follow up the antiphlogistic plan, and with that view it was decided to try the full effect of tartarised antimony, as the medicine best adapted to fulfil the indications required. Accordingly nine grains of the salt were dissolved in six ounces of the camphor mixture, and an ounce of this solution was administered every hour during the day: such was the tolerance of the remedy, that not even the slightest nausea was induced by it, but it had the happiest effect in softening and relaxing the previously rigid condition of the parts. The labour pains, which had been quite suspended for about four hours, returned gradually about one o'clock, and I availed myself of the first opportunity which offered to rupture the membranes, when about a pint of water flowed away. I may here mention, that although no further convulsions occurred, she continued in a torpid and half-comatose state, the sense of vision especially being very imperfect. The uterine efforts became now strong and effective, but owing to the slow dilatation of the os uteri, the anterior lip was pushed down in front of the head in its passage through the pelvis, reaching almost to the os externum. I succeeded, however, at about seven in the evening, aided only by the natural efforts, in delivering her of a still-born female child, and having waited about twenty minutes, and no pain coming on, I extracted the placenta, which was partly in the vagina, and soon had the satisfaction of feeling the uterus well and firmly contracted. Dr. Tyler Smith saw her again with me in the evening, and a draught, containing one third of a grain of morphia and three grains of camphor, was administered, which had the effect of calming the nervous irritability and restlessness, which had been for some time increasing. She slept profoundly the whole of the night, and on visiting her next morning I found her with a quiet intelligent smile on her countenance; her pulse 96 and soft; the skin moist and comfortable; the head free from pain, but feeling rather heavy; and having no recollection whatever of anything which had occurred during the previous twenty-four hours. I ordered her still to continue the ice-cap to the head, and to take a saline draught containing a diminished quantity of tartarized antimony every four hours.

On Friday, the 5th, she had a dose of calomel and colocynth, followed in a few hours by a draught of senna and salts, which cleared out the bowels very effectually. A purgative was afterwards exhibited every alternate day. She continued steadily to improve without a bad symptom, and I have the satisfaction to state that she soon perfectly recovered. The secretion of milk on the fourth day was very abundant, and proved rather troublesome for some short time.

I must not omit to notice, that on testing the urine I found in it no trace of albumen, nor was there any œdematous swelling of the legs—a fact of some importance in reference to the modern theory with regard to the nature of these congestive diseases of the brain, as it affords conclusive evidence that albuminuria does not universally obtain in these affections.

This case, I think, presents several other features of considerable interest to the practical obstetrician and to the profession generally. In the first place, it serves to confirm the imperative necessity of large and adequate depletion in the congestive variety of this formidable disease, affording at the same time, ample proof of its undoubted safety and success. It also furnishes a remarkable example of the tolerance of tartar emetic—a fact long well established in reference to its use in pneumonia and some other pulmonory affections, but not, that I am aware of, to the same extent in cerebral disorders as this case so strongly illustrates, a grain and a half having been taken every hour for eight consecutive hours without the least nausea resulting from it. While speaking of this valuable medicine in connection with this class of affections, it may not be out of place to add, that I have employed it with marked benefit in combination with camphor and morphia, (aided by cold applications to the head, and preceded by active purgation and leeches to the temples,) in two very severe cases of puerperal mania. General bloodletting being here for the most part inadmissible, it is very desirable to possess a remedy so available as this proved in both the instances referred to, in controlling the excited state of the circulation, and in tranquillizing the extreme irritability of the nervous system, both which conditions are so constantly present in the more active forms of this distressing malady.

REPORT OF AN

INTERESTING CASE OF VACCINIA AND VARIOLA IN AN INFANT.

By T. C. Beatty, Esq., M.R.C.S. & L.A.C., Durham.

Distinct small-pox in the mother at the time of delivery; her recovery. Vaccination of the infant on the fourth day; vesicles matured on eighth day. Appearance of eruption of CONFLUENT *small-pox at same time; death of the infant twelve days after vaccination.*

On the 27th of October last, I was summoned to visit Mrs. M—— who was in daily expectation of the birth of her first child. The symptoms which presented themselves were, headache, vomiting, and pain in the lumbar region, with "bearing-down." Considering these symptoms as precursory of labour, I prescribed a little simple febribuge anodyne mixture, and directed that I should be sent for if she should be any worse. On the following day, Mrs. M—— was very poorly, and on the next (the 29th,) at six P.M., was delivered of a daughter.

The case was a tedious and severe one, but requiring no especial comment, excepting the appearance on the neck, face, and arms, of a plentiful crop of very suspicious-looking spots, becoming so much developed during the excited circulation of severe labour, that I had no difficulty in diagnosing them to be variolous. The following day there could be no doubt that my patient was the subject of variola in a *distinct* form, but of at least average severity. The disease went through its usual stages, and ended in perfect recovery, leaving, however, a few marks of its visitation. To give the infant a chance, she was carefully vaccinated on the morning of the fourth day after her birth. True vaccinia was the result; and yet, on the eighth day after she was vaccinated, when the vesicles were fully matured, the little patient was very ill, and showed signs of an eruption under the skin, which proved to be *confluent* small-pox, of which the little creature died four days after. Several of my medical friends think the case unique; all consider it exceedingly interesting and instructive. If it sheds any light upon the *quæstio vexata* of the present day, I shall be rejoiced by its publication.

I see it has escaped me to mention, that after I had vaccinated the child, I enveloped the arm round the punctures, with linen, securing it in situ with a bandage, to prevent any variolous matter being communicated from the mother through the punctures or abrasions af the cuticle.

I resist the temptation of making my own comments upon the case, being anxious to have the opinions of other men. Perhaps, however, I may be allowed to say that I consider the most *salient* point of the case to be this: that although the mother had the *minor* form of the disease (that is to say, *distinct*,) the infant, although under vaccination, died of the *major* or *confluent* form. I shall make no further remark, excepting to state that Mrs. M—— had been vaccinated in infancy.

ON

CERTAIN IMPORTANT POINTS IN THE CHEMISTRY AND PATHOLOGY OF THE URINE.

By Arthur Hassall, M.D., Lond.

(Continued from July No., p 39.)

The present and following articles have been prepared and written for upwards of a year. Their publication has been delayed to this time in consequence of numerous pressing engagements.

Reddened litmus was employed in the foregoing experiments, in preference to turmeric paper, on account of the much greater delicacy of the indications afforded by it.

We have now to take into consideration the results deducible from those experiments, and some of which are of an interesting and important character.

1st.—The simple act of boiling an aqueous solution of urea is sufficient to determine the gradual dissolution of that substance, and its conversion into carbonate of ammonia, a result at variance with statements made on this subject, particularly with that advanced by Dr. Bence Jones, and which was particularly adverted to in one of the former of these articles.*

2nd.—This conversion of urea takes place, after a time, in distilled water, even without the aid of the spirit-lamp, a result likewise opposed to a second statement made by Dr. Jones.†

3rd.—The decomposition of urea is effected, either with or without heat, much more readily in fluids which are alkaline, and especially in those the alkalinity of which arises from the presence of lime in any form.

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* Animal Chemistry, p. 90.

† Ibid.

4th.—The conversion of urea is retarded, and sometimes altogether prevented, by an acid condition of the fluid in which it is present; and this is equally the case, whether the solution be subjected to the heat of the spirit-lamp or not; the more acid the fluid, the greater its power of resisting the decomposition of the urea.

5th.—Animal matter in a state of decomposition exercises a powerful influence over the transformation of urea; and this it does by producing an alkaline condition of the fluid in which the two substances are contained, the alkalinity being produced by the carbonate of ammonia generated during putrefaction.

It will be observed that this chemical explanation of the action of animal matter, in converting urea into carbonate of ammonia, is much more satisfactory than the vague and theoretical notion of Dumas, that the mucus of the bladder, by undergoing a putrescent change, acts, like yeast, as a ferment, and so aids the conversion of the urea.

The alkalinity of urine very commonly proceeds from the presence of carbonate of ammonia, which is derived in part from the animal matter in that fluid, and in part from the urea; but the circumstances which originate, and either facilitate or retard this conversion, have not hitherto been well understood. We are now, however, in a position to furnish a tolerably accurate and complete account of what these circumstances are. It has been noticed that in some urines the urea disappears in the course of a few days, while in others it remains unchanged for weeks, months, and even years; but the causes of these differences have not until now been satisfactorily determined.

Of urines, some are in a neutral or alkaline state when passed; others quickly acquire one or other of these conditions after being voided, while others again do not lose their acidity for a very long period.

Those urines which are alkaline when passed, may be so either from fixed or volatile alkali, or from both combined. In accordance with the results of the experiments described above, an alkaline condition of the blood from fixed alkali would have a tendency to produce a decomposition of the urea, even while contained in the circulating fluid, and so bring about a mixed alkalinity; and this perhaps is one explanation of the occasional presence of carbonate of ammonia in urine but just voided.

Out of the body, there is no question but that an alkaline condition of the urine from fixed alkali facilitates the decomposition of the urea into carbonate of ammonia.

But a more frequent cause of this conversion, and one, indeed, which is more or less in operation in every urine, is the decomposition of the vesicle mucus, which, by giving rise to the formation of carbonate of ammonia, produces an alkaline condition of the urine, which, by reacting in the urea, occasions its transformation, and so increases the degree of alkalinity; and this decomposition of the mucus is in general the first change affected in the passage of a neutral or slightly acid urine to an alkaline state.

The decomposition of the mucus, like that of the urea, varies according to circumstances; thus, acidity and cold tend to retard the change; the amount of animal matter present produces also a corresponding variation.

The influence of vesical mucus in determining an alkaline state of the urine, has been shown by experiment 14; and it may be still further illustrated by putting aside two portions of the same urine, the one filtered, the other not, and noting the periods at which each becomes alkaline; it will be found that the unfiltered urine is always the first to undergo the change.

Those urines which, although acid when passed, quickly become alkaline, are found to be but feebly acid as voided, and to contain a greater or less proportion of animal matter, the natural tendency of which to decomposition is therefore not opposed by the condition of the urine as respects acidity.

Lastly, those urines which are long in becoming alkaline, are always either very acid, or they contain little or no mucus.

Now, as the development of carbonate of ammonia takes place in any urine quickly or slowly, and in greater or less quantity, in a corresponding ratio will the urea be affected, and disappear either quickly or slowly.

The experiments now recorded appear to explain satisfactorily the *modus operandi* of acid remedies in alkaline conditions of the urine, proceeding from consitutional and general causes—viz., by retarding the conversion of the urea into carbonate of ammonia.

They likewise admit of further important and practical application, in connexion with the phosphatic diathesis; but the consideration of this will be made the subject of a separate communication.

To return from this not unimportant digression to the more immediate object of these papers—viz., the consideration of the tests for sugar—it appears, then, that in slightly acid, neutral, and alkaline urines, carbonate of ammonia is developed from the decomposition of urine during the application of the heat ordinarily employed in making trial of Trommer's test; and as will be seen presently, to such an extent as to interfere, possibly, in some slight degree with the proper action of the test.

We will now go *seriatim* through the remaining salts and substances of the urine, including not only those the presence of which is constant, but also those which are but occasionally contained in that fluid.

(To be Continued.)

POISONING BY STRYCHNIA.

RECOVERY.

By J. Cooper Forster, M.D., Lond., F.R.C.S.

Very little apology is needed, I think, for troubling you with the following interesting case. I am indebted to Mr. W. C. Hills, house-surgeon to the Surrey Dispensary, who first saw the patient, for the main facts.

S. S——, aged fifty-two, dissolute hypochondriac, with a constitution and intellect considerably damaged was under my care with indolent ulcers on both legs; and on account of dyspeptic symptoms, from which he also suffered, I ordered him one-twelfth of a grain of strychnia, to be taken three times a day. For convenience and accuracy in dispensing, an acid solution of strychnia is kept at the Surrey Dispensary, in the proportion of one grain to an ounce of water, and this patient had an ounce and a half of that solution given him, a teaspoonful of which contained the dose required. From inattention to both verbal and printed instructions, on his return home he took rather more than an ounce of the medicine, which he had not swallowed above ten minutes when he became violently convulsed. On discovering his mistake, he immediately took copious draughts of cold water; but the convulsions increasing in severity, his friends became alarmed, he was driven in a cab to an hospital, when being refused admittance he was again brought to the dispensary. An hour and a half had now elapsed since the poison was taken, during the whole of which time his attendant stated he had been violently convulsed. When Mr. Hills first saw him, he had trismus, with the upper and lower extremities completely rigid, and paroxysms of opisthotonos and emprosthotonos occurring alternately. A paroxysm now took place every six minutes, each one lasting about two minutes, and during the emprosthotonic condition he uttered a violent shriek. He had half a drachm of sulphate of zinc given immediately, and was sent home, and placed in a warm bed. I saw the patient with Mr. Hills about four hours after the poison had been taken, and found that he had been slightly emetized by the zinc, and had also been most violently purged. The tetanic rigidity still continued; paroxysms were, however, less frequent; the patient could only lie on his back, and the slightest exertion brought on the convulsive attacks. The bladder also seemed to particpate in the general contraction of the voluntary muscles, and expelled small quantities of urine, as fast apparently as it flowed into that viscus; the pupils were natural; the pulse small and irritable; and the whole frame was evidently much exhausted and enfeebled. He was now ordered frictions over the spine by means of soap liniment, which afforded him great relief, half a drachm of the compound spirit of sulphuric ether in camphor mixture, to be taken internally every four hours. During the night he continued to have involuntary twitchings of the limbs, which lasted also through the following day; on the second night they became more severe, but were only of a few hours' duration, and then entirely left him. He has since returned to his work in his usual health.

I find Dr. Taylor states, in his valuable work on Poisons, that he has been informed of a case in which a grain of strychnia had been taken, vomiting had supervened, and the patient had recovered; but he does not authenticate it, and moreover states that half a grain proved fatal to Dr. Warner in fourteen minutes. From this, a doubt naturally arises in one's mind, whether the strychnia which had been taken in the present instance was of good quality, as a dose far beyond the average was swallowed, and in solution, which so much favours absorption; and yet the patient recovered. The extreme urgency of the symptoms, however, I think, sufficiently proves the genuineness of the drug; and I can therefore only attribute the favourable result to the large quantity of cold water swallowed, which appears to have acted as a powerful aperient, carrying the poison rapidly along the alimentary canal. With regard to the treatment adopted at the dispensary, it appeared the only course left to be pursued, as no antidote is known; and the result, I think, proves the value of the zinc administered, and justifies the supposition that this drug acted as a stimulus to the distended intestines to get rid of their contents, as almost immediately after the emetic was swallowed violent purging took place, with only very slight emesis.

ON A

CASE OF VACCINIA AND VARIOLA.

By G. H. Hopkins, Esq., M.R.C.S., &c., Chapel-en-le-Frith, Derbyshire.

The prophylactic power of vaccination having of late attracted much attention, the following case, which has lately occurred in my practice, somewhat similar to two which have recently appeared in The Lancet, may perhaps be deemed worthy a small space in that valuable periodical.

W. Gardner A——, aged two years, was vaccinated by me on April 28th, an elder sister (never vaccinated) at the same time labouring under a mild attack of small pox in the third or pustular stage.

On May 5th, or eighth day after vaccination, there were two good vesicles on one arm and one on the other, and he appeared in good health.

May 6th.—Was sent for in great haste, and on my arrival was told he had had a "fit." Found him very restless and feverish.

On the following day he continued feverish, but had no more fits.

On the 8th, an eruption made its appearance, and he passed through the usual stages of a mild attack of small pox, and recovered well.

The vaccine vesicles did not reach maturity as soon as usual and the areolæ were less. There were several children living in the same row, vaccinated at the same time; and I believed they all escaped variola. I have recently met with many cases of small-pox after vaccination, all more or less modified.

SINGULAR CASE OF ASPHYXIA.

By George Parker May, M.D. Edin.

I received an urgent request (on April 27th, 1852,) to visit a young man two miles from hence, who was stated by the messenger to have been choked by being "rolled in bran." On reaching the spot, I found a lad about eighteen years of age extended on a bed, apparently quite dead. The bystanders informed me that he had ceased to breathe about twenty minutes. The countenance was pallid, the lips somewhat livid. I at once opened the trachea immediately below the cricoid cartilage, cutting through the three first rings, and endeavoured to restore respiration by artificial means, but without success. The case became the subject of judicial investigation, and in compliance with an order from the coroner for the county, I made an examination of the body sixteen hours after death. The thorax and abdomen retained a sensible amount of warmth; the heart was in all respects healthy, ventricles empty, and the venæ cavæ distended with black blood; the right lung was extensively adherent to the costal pleura; the parenchymatous structure of both lungs appeared to be entirely normal, but when cut into, a considerable quantity of reddish, frothy fluid exuded from them when gently squeezed. The larynx and trachea were carefully removed from their attachments, and on slitting up the former, some particles of coarse pollard were visible in its cavity, principally around and in the ventricles. Similar particles were observed on the lining membrane of the trachea. At the bifurcation of the tube a considerable mass of this substance was found occupying its whole calibre. The left bronchus was entirely filled with pollard, the right nearly so, and their subdivisions, as far as they could be traced into the substance of the lungs, were full of the same material. More than a tablespoonful was extracted from the bronchi and their larger ramifications. The brain presented nothing abnormal, excepting a somewhat congested condition; this probably would have been more marked had this viscus been first examined, as a large quantity of blood flowed from the descending cava on separating the heart and lungs from the thoracic cavity.

It appeared from the evidence adduced at the inquest, that the deceased was, by way of joke, forced head-downwards into a sack containing about a bushel of pollard, by two of his fellow-labourers on the farm. According to the testimony of one of the parties, who were at the same time the perpetrators and the only witnesses of the outrage, the mouth of the sack was tied with rope-yarn round the legs of the lad. This was almost immediately cut, and the boy released from the sack. He was reported to be black in the face and frothing at the mouth, but became sufficiently sensible to drink a small quantity of water. When removed from the granary, where the occurrence took place, to his bed-room, he was breathing with difficulty; was entirely insensible during the time that he lived, which was about a quarter of an hour after his removal and about twenty minutes after he was extricated from the sack.

The jury returned a verdict of "manslaughter" against the parties implicated in the transaction, and they were committed on the coroner's warrant for trial at the ensuing assizes.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON, &c.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tum aliorum proprias, collectas habere et inter se comparare.—Morgagni. *De Sed. et Caus. Morb.* lib. 14. Prœmium.

ST. BARTHOLOMEW'S HOSPITAL.

Carcinoma of the Rectum; Artificial Anus by Amussat's method; Temporary Relief; Death; Autopsy.

(Under the care of Dr. Burrows and Mr. Paget.)

We called attention a little time ago to some cases of unconquerable obstruction of the intestinal canal, which were treated in this hospital. It will be remembered that it was not thought advisible, in these instances, to resort to operative measures, and that on post-mortem examinations, a state of parts was found which might in some degree have justified an attempt of creating an artificial outlet for the pent-up fæcal matter. We have now to offer a few details of a case in which Mr. Paget actually made an artificial anus in the groin, with temporary benefit; and though the patient did not finally recover, it is of importance that such cases should be put upon record, as it may happen that a similar operation, under more favourable circumstances, might prolong life for an indefinite period.

There is doubtless some risk in making an artificial outlet, either for the fæces or urine, but it has appeared to some experienced surgeons that this risk would perhaps be less important if such operations were performed earlier, and before the patient is completely reduced by pain, peritonitis, and the administration of strong purgatives, or other medicines. In fact, the question is simply this: is the danger of making an artificial anus or urethra greater in a given instance than allowing the obstruction to continue, relying in the latter case either on the efficacy of remedies or the powers of nature?

It is clear that in such a disease as carcinoma of the rectum, the patient dies of the malignant disease, or the obstinate constipation to which the cancerous affection may give rise. But the fatal issue is more rapid by the effects of the obstruction than those of the cancer, so that in cases of this kind an artificial opening in the loins may very properly be made. In intestinal constriction by band, congestion, fibrinous deposit, or any adventitious change which admits of spontaneous repair, or rectification by surgical means, a lumbar anus may be looked upon as a temporary outlet, the great advantage of which is to forestall the evil effects of a prolonged retention of fæcal matter, and afford a ready exit to it, while the portion of the intestinal canal which is the seat of the obstruction undergoes (in favourable cases) such changes as will tend to re-establish the continuity of the whole tract.

There is certainly some analogy between puncturing the bladder by the rectum, making an artificial anus in the loins, and performing tracheotomy. We want, by these operations, to facilitate the exit of certain products or the entrance of air, in order to ward off a fatal issue, these operative measures being principally intended to afford temporary relief. But the surgeon, after following this line of practice, turns his whole attention to the quiescent state to which the affected organs are brought by the artificial in or out-let, and endeavours to take advantage of this truce, if we may so speak, to favour the return of healthy function in the digestive, urinary, or respiratory organs.

The great misfortune is, of course, that we are exposed in fatal cases to the displeasure of the patient's friends, who never fail to attribute to the operation, and not to the disease, the unfavourable termination which may take place. This injustice on the part of the public has very probably induced surgeons in many instances to postpone operations, which at an early period might have been instrumental to the prolongation of life. We refrain from saying more just now, for we fully expect having very soon an opportunity of returning to this subject, which is in several respects highly important, and proceed to offer a few details of the present case, as noted by Mr. Callender, the dresser of the patient.

Sarah P——, about forty-five years of age, was admitted July 27th, 1851, into Faith ward, under the care of Dr. Burrows. The patient was in a state of great exhaustion and emaciation; her lips and teeth were covered with sordes, the respiration laboured, and the skin warm, except towards the extremities; the pulse was 124, small and soft; the tongue dry, brown on the dorsum, and red at tip and edges; the thirst urgent, and the appetite quite gone. There was no nausea on admission, but there had been sickness and vomiting on the previous morning; the bowels had been confined for nine days, and no urine voided for about twelve hours. On examination, the abdomen was found hard, distended, and tympanitic, the integuments covering it firm and glazed, the cavity being the seat of intense pain, principally referred to the region of the cæcum, and occurring in paroxysms, with violent peristaltic movements of the intestines. In the rectum, a firm tumour was felt projecting into the cavity of the bowel, depressed in the centre, and seemingly springing from the hollow of the sacrum. The tumour descended to within about four inches of the anal orifice, between which and the abnormal growth the rectum was healthy, but of a larger calibre than usual. The uterus had been in a prolapsed condition for a long time past.

The patient, on being questioned, stated that she was a widow, the mother of two children, that her labours had been natural, and that she generally enjoyed good health, though now and then, for the last eight years, suffering from constipation. Within about one year, the stools had been scanty, and consisting of small worm-like pieces of fæcal matter. The present abdominal obstruction commenced, as the patient says, nine days before admission, but there was reason to believe that eleven days had passed since the last evacuation. She has had violent pain in the abdomen ever since, and the most active aperient treatment has not overcome the constipation.

Dr. Burrows directed the introduction of a long tube, which, however, gave no relief; a drop of croton oil was therefore given. As this had no effect, at seven o'clock in the evening, Dr. Burrows and Mr. Paget decided, in consultation, that an artificial outlet for the fæcal matter should be made in the loins by opening the colon.

Chloroform was administered; and while the patient lay on her chest and abdomen, Mr. Paget made an incision over the descending colon, about four inches in length, and extending from the extremity of the last rib to the crest of the ilium. The latissimus dorsi, external oblique, lower and outer part of the quadratus lumborum, and the aponeurosis of the internal oblique, were successively divided, and found much thinned by the distension. The intestine was now exposed, and, being very tense, was easily opened by an incision about half an inch in length. A copious discharge of fluid fæcal matter and flatus instantly took place; and as the bowel bulged out considerably, it was secured to the margins of the external wound by four ligatures, and the patient conveyed to bed. During the operation, the pulse continued steadily at 112, and rather improved in volume towards the conclusion. The patient was given some ether in camphor mixture, to be repeated every four hours; and she was to have an opiate when necessary.

It was found, on the next day, that she had slept tolerably; the wound had allowed a constant and copious discharge of fæcal matter; the patient felt much easier, and had not complained of pain since the operation; pulse 96, slightly decreased in volume; tongue less dry, and covered on one side with a thick white fur; appetite slightly returned. The wound looked well, but the mucous membrane of the bowel was everted, and projected through the external wound; the herneated membrane was, however, easily returned, and kept in its place by a piece of sponge. Twenty ounces of high-coloured urine were drawn off by the catheter. The diet was to consist of arrowroot in milk; beef-tea; and wine.

The patient was quite free from pain during the whole of this day, and went on taking a fair amount of nourishment. There was no nausea, and partly solid fæcal matter continued to be discharged from the wound. The abdomen was at the same time flaccid, and tolerant of pressure.

During the second night, the patient lay dozing, and taking freely the food offered to her; but about six in the morning she became very weak, her extremities turned cold, and she complained of great faintness. Ten ounces of urine were drawn off, and large quantities of brandy administered; but the patient gradually sank, and died at half-past seven in the morning, thirty-six hours after the operation, without any complaint or expression of suffering.

Account of the Post-mortem Examination.—The peritonæal cavity contained five or six ounces of turbid serous fluid; soft lymph lay in the grooves between many of the convolutions of the intestinal canal; a larger quantity of the same lymph was found in and about the part of the descending colon into which the opening had been made, though its peritonæal covering had sustained no apparent injury. The upper half of the small intestines was dilated, but not considerably so, with fluid, fæcal matter, and air; the lower half and the greater part of the large contracted. The coats of the whole length of the canal appeared healthy as far as the middle of the rectum, where, about four inches from the anus, the walls of the intestine were abruptly contracted around a very hard tumour. The latter, of annular form, appeared to occupy the whole wall of the bowel for about half an inch, projecting into its canal, and so nearly closing it that a quill could scarcely be passed. The posterior part of the tumour adhered firmly to the front of the sacrum, and had to be cut away from it. The whole substance of the growth had the hardness of scirrhous cancer of the breast, and its inner surface was covered with the mucous membrane of the rectum, which membrane was soft and swollen, but not ulcerated. The peritonæal covering of the front and sides of the rectum was constricted deeply to the substance of the tumour, and adherent to it. Except this disease of the rectum, and the prolapsus of the uterus, no organs presented other changes than those usual in old age. The part of the colon into which the opening had been made was contracted to its ordinary size, and the space between the lines of reflection of the peritonæum on its sides was, in this contracted state, rather less than half an inch. The incision into the intestine was situated midway between those two lines of reflection of the peritonæum, therefore not more than a quarter of an inch from each. The mucous membrane of this portion of the intestine was turgid with blood, and its peritonæal surface, when the lymph was wiped from it, appeared healthy. The wound presented nothing remarkable.

Traumatic Tetanus; Death; Autopsy.

(Under the care of Dr. Burrows.)

We have this day to report two cases of tetanus, in both of which the exciting cause of this formidable complaint escaped notice at first; but the characters of tetanus are so well known, and the cases are comparatively so frequent, that it is hardly possible to mistake the disease under consideration for any other. The only question, in cases of doubtful origin, is, of course, whether the affection be actually idiopathic or not, for there is always a hope, though a very faint one, that the removal of the source of irritation may, in combination with other favourable circumstances bring on a successful issue. It is but too true, however, that amputation has failed in several instances to moderate or remove the tetanic manifestations; but cases may occur, especially with highly nervous patients, where the disease might perhaps be controlled by removing the cause with is producing irritation in the spinal system. Nor should it be forgotten that the inhalations of chloroform have saved several patients in whom the tetanic symptoms were perfectly distinct; and it is not difficult to understand that so powerful an agent should, by its paralyzing effects, lessen the exhaustion resulting from the violent spasms, and assist the constitution in this kind of contest with the disease. Besides the anæsthetic effects of the chloroform, there is another way in which it might be used—viz., in endermic applications along the whole of the spine. No doubt some smarting and inflammation might follow the direct application of chloroform to the cutis; but be the chance of its doing good ever so faint, it should be invariably tried: "aux grands maux, les grands remèdes."

Many of our readers will agree with us, that in such diseases as hydrophobia, tetanus, chorea, &c., it is of some importance, as the pathology of these complaints is wrapped in complete obscurity, to study the therapeutical part of the subject, and endeavour, by watching the effects of remedies, to devise means for the relief or cure of those diseases. Here we must needs become pure empirics. Practitioners are nearly in this condition when treating the various kinds of idiopathic fevers; for we know the poison of typhus or scarlatina by its effects only, and no one has ever isolated the virulent principle which so fearfully disturbs the animal economy. These are not the only affections in which we are forced to study and treat symptoms; but we refrain from dilating on the subject, as we shall before long return to it, and we therefore proceed at once to this strange case of tetanus, as noted by Mr. Edwards, one of Dr. Burrows' clinical clerks:—

Louisa J——, aged thirty-three, married, the mother of four children, (the youngest being five months old,) and following the occupation of shoe-binder, was admitted, Feb. 10, 1852, under the care of Dr. Burrows. Her aspect and expression were natural, the cheeks flushed from a sinapism, and the skin warm and moist; pulse 108, good volume, and compressible; tongue only partially protruded, thinly furred, and moist; bowels open two days previous to admission, by means of a purgative dose, but not since; catamenia regular. The patient is unable to open her mouth beyong half an inch. She says that she cannot eat anything solid, though able to take fluids; and complains of pain in various parts of the body, especially the back part of the head and between the shoulders, and also of a loss of power in the right leg. Upon retraction of the tongue, the mouth is spasmodically closed with a click; and on inspiration and swallowing there is a choking sensation in the throat. She sleeps tolerably well, but is frequently disturbed during the night by startings and a slight cough. The patient's articulation is not impaired, though she is reported to have had her teeth firmly clenched, and to have been unable to speak, upon her reception into the ward. Upon examination of the back, no pain or tenderness can be discovered over the cervical or dorsal vertebræ, and the cardiac sounds are found quite normal.

Two years ago the patient suffered from a very severe attack of cholera morbus, since which time she has been very nervous, but has never had hysterical fits. Six days before admission (Feb. 4) she was in her usual health, but in the evening the house was robbed, which circumstance caused her a good deal of terror and anxiety. The following morning she found, to her surprise, that she could only partially open her mouth; but she was at that time able to take solid food. The pain in the head and between the shoulders had begun four days before admission, and the loss of power in the leg three days afterwards. She applied to a medical man, who gave her medicine, and put a blister to her throat, which is still sore.

Dr. Burrows ordered cupping at the back of the neck to ten ounces; ten grains of calomel to be taken immediately; and a drachm of mercurial ointment to be rubbed into the thighs three times a day. The patient was to have, besides, a purgative enema at night, and a myrrh gargle for the mouth. She slept very little during the night, and complained in the morning of pain in the head, and also in the right leg, which is, she says, drawn up when she coughs or swallows.

The trismus was on the second day more marked than on the first; the patient unable to lift her head from the pillow; she lay on her back, and said that she could not change her posture. The skin was warm and dry; the pulse 120, small, and compressible; but the tongue could not be protruded; the bowels were open twice in the night, the motions being reported dark-coloured and relaxed. Some carious teeth were noticed in the right upper jaw. She was now given a dose of castor-oil, and took tincture of hyoscyamus in camphor mixture. Dr. Burrows likewise ordered four teeth to be extracted. On the third day of the woman's stay in the hospital, it was found that immediately after the extraction of the teeth she was able to open her mouth a little better; but the difficulty soon returned, as unconquerable as before. She had slept well in the night, but in the morning she complained of a very acute pain extending down from thigh to foot on the right side. There was, however, little or no pain in the head, though the trismus was much more marked than on the preceding day; the voluntary muscles were becoming rigid, and the patient could not sit up, but with some difficulty she was made to do so. There was now noticed a slight tendency to opisthotonos.

While Dr. Burrows was in the ward, the patient was made to inhale about two drachms and a half of chloroform. When under its influence, the countenance became livid, the breathing stertorous, the mouth began to foam, and spasms occurred as in an epileptic fit. Upon recovery of consciousness, she said that her pains were less severe, but the pulse continued much the same.

In the afternoon of this (the third) day, she stated, for the first time, that one month previous to admission she had trodden upon an awl, which had entered her right foot, and had caused swelling, but without any discharge from the wound. On examination, there was now found a small cicatrix on the outer side of the sole of the foot, about midway between the heel and toes. She was ordered chloric ether, and tincture of hyosciamus in camphor mixture, with a hip-bath and an enema at night.

Fourth day.—After the bath the patient perspired very freely, but had little sleep during the night. Mr. Wood saw her in the morning, and ordered some laudunum, after taking which she obtained some sleep. When she awoke, Mr. Paget, by Dr. Burrows' desire, made an incision down the outer side of the sole of the right foot, and a transverse one across it, when a black mark became perceptible, which was supposed to be the course taken by the awl. At two P.M. she bitterly complained of the pain in the right leg, which latter was rigid and drawn inwards. Spasmodic movements of all the limbs now came on; the legs were often forcibly drawn up, the muscles remained very rigid, and the trismus much the same. Twelve leeches were now put on the right foot, the spot to be fomented afterwards, and small doses of calomel and opium were given every fourth hour.

Fifth day.—The patient has become restless and noisy; on the previous evening, however, after taking calomel and a purgative enema, she had a little rest after a dose of laudanum. The bowels were moved in the morning by means of another purgative dose; at one o'clock in the day there were some convulsions, but the tendency to opisthotonos became less, the right foot still remaining bent and somewhat inverted. The trismus was as marked as before, and the woman lay on her back with a languid and exhausted aspect, the forehead becoming transversely and longitudinally wrinkled.

On the sixth day it was found that the patient had had some sleep in the night. In the morning the spasms were less frequent, (occurring about once in two minutes.) On the right side the voluntary muscles were quite rigid and contracted, but on the left side relaxed. She says that she feels very low and weak, but has no pain. The symptoms are unchanged; she has taken all her food, but the feet are very cold. In the evening she was very faint and exhausted, and refused to take nourishment and medicine. Beef-tea injections were tried, but she gradually sank on the seventh day, without any increase of the spasms or delirium.

The post-mortem examination was conducted, fourteen hours after death, the weather being fine and cold, by Dr. Kirkes, demonstrator of morbid anatomy to the hospital. Frame well nourished; several papulæ on the epigastrium, produced by a mustard-plaster the day before death. The parts about the sole of the right foot were carefully examined, but no trace of inflammation, suppuration, nor other recent mischief, was found. There was only noticed a little altered blood in the track of the incision made shortly before death. On the under surface of the fourth metatarsal bone, near its phalangeal extremity, there was, however, observed a rather deep circular hole, as if drilled into the substance of the bone; it was of a reddish-brown colour, but no metallic substance was observed at the bottom of the perforation, and there was no apparent inflammation of the periosteum around it. The posterior tibial nerve appeared healthy, as did also its external and internal plantar divisions. It should, however, be noticed that the external plantar nerve seemed to be directly in the line of the puncture made by the awl. There was nothing remarkable in the contents of the cranium; but as to the spinal cord (which was closely examined) it was found that its cervical portion was perhaps rather firmer than ordinary; but the firmness gradually diminished downwards, the lower portion of the dorsal region being very soft, and even in places almost pulpy. The softness extended through the whole thickness of this portion of the cord, and affected each half alike, but the membranes appeared quite healthy. The heart and pericardium, and the other thoracic and abdominal viscera, were sound, or presented nothing worthy of note.

Encephaloid disease of the Pelvis and upper part of the Femur.

(Under the care of Mr. John Adams.)

William D——, aged eighteen, was admitted into the Prince of Wales's ward, under the care of Mr. Adams, Nov. 18, 1851. The patient has been residing in Bethnal Green, working as a hemp and flax dresser, and enjoyed excellent health until about four months before his admission; his mother, however, died of *tumours* on her neck and below the knee, and his brothers and sisters are issues of a second marriage. About two years before the boy was received into the hospital, he struck, while running, the posterior part of the right ilium, against a lamp-post; he experienced much pain, walked lame for two months, but became again quite well. Twenty months after this accident, the patient was suddenly seized, while at play, with a very sharp pain exactly at the spot where he had long before struck himself; he immediately felt a difficulty of walking, and noticed a swelling on the upper and back part of the ilium, which swelling has ever since been increasing. The pain now was principally referred to the groin and knee, and he was soon obliged to keep his bed.

When admitted, the tumour was about the size of a small plate; but it has, for the last six months, taken an enormous development towards the groin and the femur, invading the whole of the right half of the abdomen from the umbilicus downwards, the entire ilium, and the upper third of the femur. The largest mass of the disease lies over the great trochanter, the whole tumour presenting about the same size as the trunk of a full grown man. Large veins ramify over this enormous growth, and so great has of late been the distension that vessels the size of a crow-quill, and filled with light fluid, are seen coursing under the skin, these being hypertrophied lymphatics. The emaciation of the poor boy has kept pace with the dreadful increase of the encephaloid tumour; he is extremely thin, the scrotum and right leg being at the same time œdematous from pressure on the pelvic veins.

The patient has taken large doses of cod-liver oil; he is principally kept up by wine and opiates; and the power of these must indeed be great, as his debilitated frame has not yet sunk under this formidable disease.

We beg a few moments' attention for an analogous case at the Westminster.

Encephaloid Disease of the Femur and Ilium.

(Under the care of Mr. Lawrence.)

William W——, aged twenty-three years, following the occupation of porter, was admitted into Henry VIII.'s ward, under the care of Mr. Lawrence, June 23, 1851. The patient was born in London, and has had all the diseases of early age, including small-pox. His father died at forty years of age, but the patient does not know of what affection; the mother is alive, and his brother and sister are in the enjoyment of good health. He has been accustomed to very rough work, but could always procure good food; he indulged now and then in excessive drinking, but has never suffered in his health, except from the venereal disease.

Two years before admission, he was suddenly seized with pain in the knee while running, the uneasy sensation extending down along the tibia and up to the thigh. No tumour whatever had at that time made its appearance, and he was admitted into the Westminster Hospital, where he stayed one month, under the care of Dr. Hamilton Roe. After the patient had returned home, where he lay three months, the tumour began to appear in the great trochanter, and grew very rapidly. He was now re-admitted into the Westminster Hospital, and placed under the care of Mr. Lynn, the swelling having attained the size of a Dutch cheese.

It was evident at this juncture that the disease was of a very serious kind, and that hardly any measures, except palliative ones, could be resorted to. The tumour grew in the meanwhile pretty rapidly upwards and downwards, and was soon as large as an adult head.

In this state the patient was received into St. Bartholomew's Hospital, under the care of Mr. Lawrence; and as it was plain that the disease had invaded the upper third of the femur and almost the whole of the ala of the ilium, no direct relief could be thought of. For the last twelve months the tumour has made continual progress, and is now double the size it was on admission, being rather larger than two men's heads. It reaches to about five inches above the knee, and involves the whole of the left side of the pelvis. The patient has during the course of the disease suffered very acute pain, and is even now in great distress. Belladonna plaster to the tumour, and the internal administration of opium, give him, however, great relief.

Fracture of the Skull in a Child: Trephining: Hernia: Cerebri: Recovery · Subsequent Death.

(Under the care of Mr. Critchett.)

When it is considered that severe disturbance of the nervous system of children is often induced by slight irritation, either of the digestive or respiratory organs, it may readily be expected that such disturbance will be still more marked when the nervous centres suffer direct traumatic injury. Still there is a great analogy in the pathological phenomena, whether the irritation be propagated from the periphery to the cerebro-spinal axis, or act at once upon the brain and its membranes. Convulsions will occur in both cases. If the cerebrum, however, suffer more than irritation, paralysis, with or without mental derangement, will appear, with young subjects, exactly in the same succession and order as is noticed in adults. These facts are well known; and we would not venture to mention them if they did not happen to be most instructively illustrated by the case which we are going to relate. It will, moreover, be perceived, by the subjoined details, that there are several important practical questions naturally springing from the facts of the case in hand. The first is, whether in fracture of the skull, with children, the expectant method is to be preferred to operative measures; and another, whether hernia cerebris is best treated by pressure or slicing off. We refrain from entering into the merits of these questions just now, and proceed to the consideration of the case itself, the notes of which were taken, with great care, by Mr. Hall.

Thomas D——, aged five years, a healthy-looking child, was admitted, Sept. 26, 1851, under the care of Mr. Critchett, with a severe scalp wound. It appears that the patient was playing in a yard where his father was at work with a pickaxe, when the former unfortunately ran under the uplifted instrument. The parent was only able partly to counteract the impetus of the axe, but could not prevent it from striking the child on the head. The poor little boy was stunned by the blow, but he soon recovered, though the hæmorrhage from the scalp wound was rather considerable. A surgeon was immediately called in; he dressed the part, and pronounced the skull uninjured. The child continued in his usual state of health for the *six following days* without any unfavourable symptoms being noticed, except that the wound looked rather unsatisfactory, and was secreting a thin unhealthy pus. But after this period he suddenly had a convulsive fit, which recurred two or three times. These attacks were much relieved by the warm bath. Up to the sixth day, the child had been competent to walk about and play with his companions; on that day, however, he was observed, whilst going across the room, to have some unsteadiness in his gait, dragging the left leg after him. In the night the convulsive fits came on again.

On the seventh day after the receipt of the injury, (Sept. 26,) the patient was brought to the hospital. The wound had, at that period, an unhealthy aspect; the pus discharged was thin and light-coloured. On examining the wound with the finger, the pericranium was found detached from the bone, and an irregular prominence plainly felt. The child had a vacant expression of countenance, the eyes were dull, the pupils slightly dilated, acting feebly by the stimulus of light, and the boy appeared to be much inclined to sleep. His mind, however, was unaffected, for he readily understood all that was said to him, and returned appropriate answers. The pulse was, at the same time, very rapid. The wound was dressed simply; the child ordered milk diet, and put to bed. Late in the night he was seized with violent convulsions; the fits were very severe, and recurred two or three times. Cold lotions were applied to the head.

Mr. Critchett saw the child on the next day, and judged operative interference necessary to relieve the urgent symptoms. A small incision was made in the scalp, over the seat of the injury, and the flap reflected, when an irregular circular depression was seen in the skull, about the size of a shilling, presenting serrated margins and several small spicula of bone in the centre, some of these being depressed and irritating the dura mater. Two pieces were found quite loose, but several others being still attached to the inner table, it was necessary to use Hey's saw to remove them. Mr. Critchett was likewise obliged to take off a piece of healthy skull with the trephine, so as to be enabled to raise all the depressed portions of bone by means of the elevator. In this manner was the dura mater completely freed, and, when examined, found quite sound, except towards the outer part of the cranial perforation, where that membrane had been slightly scratched by spicula of bone. Very little blood had been lost during the operation. The wound was now gently cleansed and dressed, and the patient carefully watched.

On the next day it was found that the child had been rather restless and slightly convulsed during the night; the bowels had acted, but the wound did not look healthy; the pulse was compressed and soft, beating sixty times in a minute; it intermitted every eighth pulsation, when a pause of two or three beats occurred: after which, arterial action recommenced with a slight tremor. On the sixth day after the operation, the dura mater was noticed to have ulcerated in the centre of the wound, and given way, allowing a portion of brain-substance, of the size of a nut, to protrude. The herniated piece of brain was round, and coated with a dry, brownish crust. The child, however, was cheerful and rational, and enjoyed his food.

Eight days after this, the protruding portion of brain had enlarged; it projected above the surface of the scalp, was covered with a thick layer of indurated lymph and pus, and felt soft and yielding. The patient's general health had in the meanwhile improved; he sat up in bed, sought amusement, was rational and happy, but still he *very seldom spoke*.

The hernia cerebri continued to grow for fourteen days, when it reached the size of an egg. Mr. Critchett considered that the time had now come for its removal, and sliced it off with one stroke of the bistoury. About a teaspoonful of pus escaped, but very little blood followed. The separated cerebral substance weighed 165 grains; and when examined by the microscope, was found to consist of brain granules and tubules, mixed with much lymph and pus. The wound was dressed with compresses of oiled lint, applied with sufficient tightness.

After this operation, the patient progressed pretty favourably, the granulations which were forming on the dura mater and scalp gradually coalesced, and the wound began to assume a healthy aspect. The appetite continued good, the boy showed much intelligence and liveliness, but was very pallid in countenance. Seven days after the removal of the herniated portion of brain, paralysis of the right side of the face, which had been noticed for three or four days to exist to a slight extent, became more marked, partial hemiplegia on the same side was also observed, and the boy could use the *left* arm but very awkwardly.

These paralytic symptoms began, in the space of a fortnight, to diminish; and about three weeks after the ablation of the protruded portion of brain the patient gained some flesh, the muscles of the face acted more regularly, he began to talk a little, the wound was healing rapidly, and pus secreted in abundance.

A week afterwards, a slight attack of scarlatina supervened; it yielded, however, in a few days, by change of diet and of ward, as also by the use of saline medicines. Eleven weeks after the trephining, and five after the herniated brain had been sliced off, the wound was nearly cicatrized, the granulations were uniform, they had a smooth, bright character, and were seen rising slightly with each heaving of the brain. The paralytic symptoms on the right side of the body had nearly subsided, and the left arm could be more freely used. The boy was, however, not able to stand or walk without assistance; and when moving, he dragged his left leg after him. Twenty-one days after this, the wound was completely closed, the patient's strength was improved, and as his friends wished to take him home, he was discharged, fifteen weeks after the receipt of the injury, fourteen after the trephining, and eight after the removal of the herniated portion of brain. The boy could not, however, walk steadily, and was desired to attend as an out-patient.

One month after the child had left the hospital, Mr. Hall went to see him; he found the boy in bed, pale, insensible, but breathing calmly, and just recovered from a convulsive fit. The friends stated that for the last eight days he had had two or three fits daily. It appears that after the patient had been at home for a few days he made an effort to walk alone, when he unfortunately fell, and struck his head against the fender. This accident had lighted up all the former symptoms with aggravated intensity. The boy was now quite insensible, the pupils fully dilated and inactive, with ptosis of the right lid. The cicatrix was completely broken down, and a large mass of brain protruded, covered with indurated lymph and thick purulent matter. The child died about a fortnight after this second accident, and thirty-three days after his leaving the hospital.

This case, as Mr. Critchett has very justly remarked, may in a scientific point of view, be looked upon as a recovery; for when the patient left the hospital the wound in the head was quite healed, and he appeared in good health, with the exception of some weakness in the left side, which prevented him from walking without assistance. It may thus be surmised that the final cure would have been complete had not the child met with the fall which led to his decease. It is interesting to remark that mere irritation of the dura mater by spicula of bone produced, as usual, convulsive fits; but after the bones had been raised or removed, when the dura mater was freed, and inflammation followed by suppuration had been excited by trephining, pressure on the cerebral substance produced the usual effects—viz., hemiplegia and even paralysis of the seventh pair of nerves. In proportion, however, as pus was discharged, and a portion of brain forced through the cranial perforation, so the paralysis subsided. and the symptoms went on improving. It is evident also, from the details quoted above, that the slicing off of the herniated portion of brain did not arrest the favourable progress of the case; and that by promoting the discharge of purulent matter the operation tended, on the contrary, to diminish the pressure on the cerebral mass, and thus to control the paralysis.

Mr. Critchett treated this case in an extremely simple manner, and departed from the habit of freely using mercury, which in similar instances is generally pretty freely employed. Indeed, no medicine of any kind was used, except an occasional dose of castor oil, and the patient had a nutritious but unstimulating diet from the commencement of the case. As to the mercury, Mr. Critchett thinks that it is proved by this case that recovery may take place without the employment of this metal; and that this circumstance may suggest the question whether, if mercury be not needed at all, it may not perhaps interfere with the reparative efforts of nature when contending against cerebral lesion. It should not pass unnoticed that Mr. Wordsworth followed exactly the same line of practice in a case lately under his care at this hospital, in which trephining became necessary on account of pressure from hæmorrhage. The patient took no mercury, and recovered perfectly. As to the ablation of the fungus cerebri, it has been seen that no pain or inconvenience followed, either immediately or remotely, from the operation; the hernia cerebri having been reproduced only from direct violence when the child had met with a fall at the house of his parents.

We would now venture to call attention to certain mechanical contrivances which in some cases might be substituted for the operation of trephining, the latter being ever connected with some danger, of which hernia cerebri is not the least. We allude to the force exerted by the caoutchouc cup when exhausted of air, which has lately been proposed in place of the midwifery forceps. Might not an instrument so modified as to be easily applied over depressed bone, raise the latter without the aid of the crown-saw or the elevator, and without perforation of the sound cranium? The only objection which might be urged is that the sucking power might perhaps act more on the dura mater or cerebral substance than could be wished; but surely in these times of nice mechanical adaptation, the instrument might be so constructed as to exert its force on the depressed bone exclusively. This is merely a cursory suggestion, which, though humble, might perhaps lead to some important practical results.

However this may be, it is really surprising to notice what very severe injury both the skull and substance of the brain may undergo without destruction of life; and we would conclude by adducing, in a few words, an instance of these wonderful reparative powers of nature. The case occurred several years ago in the practice of Mr. Cheatle, of Burford, and was noted down by Mr. Whitby, of the London Hospital.

The subject was a labouring man, aged twenty-seven years. He started from home in good health late one winter's evening, in company with two other men, all armed with guns, for the purpose of deer-poaching. They had not been long in search of game before the first-mentioned fired, when his gun burst, and he was heard to exclaim, "Oh, God! I am shot!" from which circumstance his companions concluded that the keepers were in pursuit. They wandered about for some time, but finding all quiet, went to ascertain the condition of their friend, when to their surprise they discovered him lying quite insensible on the snow, with his gun in pieces beside him. Seeing that he breathed, although deadly pale and cold, they carried him on a hurdle to the village, a distance of five miles.

Mr. Cheatle saw the patient soon afterwards, and found him in a state of collapse, unconscious of all that was passing around him, and with stertorous breathing. Upon examination, Mr. Cheatle discovered a lacerated wound an inch above the right orbit, containing a hard foreign body, which he attempted to remove with his dressing forceps; but owing to the impaction of the extraneous substance, he was unable to do so. He then borrowed a pair of pliers from the blacksmith, and with a considerable degree of force succeeded in extracting what turned out to be three inches of the gun breach, which had entered horizontally into the anterior lobe of the brain. A gush of blood issued from the wound, and the patient remained in a state of unconsciousness. When reaction took place, he again appeared to have an idea of what had occurred, exclaiming, "Oh, God! I am shot!"

The wound was dressed with simple cerate, warmth was applied to the extremities, and cold lotions to the head. The patient had calomel and Dover's powder once or twice, and the bowels were relieved by purgatives. No untoward symptoms occurred to impede the restoration to health, the wound healed, and the cicatrix formed a thin covering, through which the pulsations of the brain were distinctly seen. In the spring, during the hay season, the patient walked to

Burford, and was so far recovered as to offer to assist Mr. Cheatle with the hay.

This man died of tubercular phthisis seven years afterwards, the strumous diathesis existing in his family.

Those who maintain that the faculty of speech resides in the anterior lobes of the brain, should notice that no derangement in the powers of articulation was noticed in this case.

Encephaloid Disease of the Humerus: Amputation of the Shoulder-joint.

(Under the care of Mr. Stanley.)

On the 3d of May, 1851, Mary A. W———, aged thirty-nine, applied to Mr. Stanley, concerning an affection of the arm. The woman's countenance presented that peculiar sallowness so characteristic in carcinoma, and her features betokened that she had undergone considerable suffering. On examining the arm, a firm oblong swelling was noticed; it occupied the head, neck, and upper part of the shaft of the right humerus; the tumour was not very painful, and she could bear its being grasped. Mr. Stanley considered this growth to be formed by a deposit of some malignant nature in the humerus, with expansion of the bone.

The patient has been married several years, and has had three children. About six months before she applied, pain commenced in the shoulder; it soon assumed a violent darting character, and continued very severe for four months, when it diminished. The woman had had great loss of rest, but did not notice any swelling until three months before she came to the hospital; thus having experienced much pain for a considerable time ere any visible malady could be detected. No blow, nor any other exciting cause can be assigned.

The serious nature of the disease was pointed out to the patient, but she refused to stay in the hospital. Nine days afterwards she came again, and was found worse; the swelling had increased considerably; it had descended into the axilla, and the œdema of the fore-arm had augmented. She was therefore admitted into the hospital, May 12, 1851, and it was now thought that the motions of the joint were imperfect. Mr. Stanley ordered wine and fomentations, and considered that amputation at the shoulder-joint was still an eligible operation. In this opinion all his colleagues concurred, together with M. Roux, who was that day paying a visit to the hospital.

Dr. Burrows having been requested to examine the patient's chest, pronounced the lungs free from deposit; and Dr. West, after instituting an inquiry, found the uterine organs in a sound and healthy state. The latter examination was instituted because the patient had stated that a few years ago she had had ulceration of the womb. The friends would not consent to the operation, and the woman again left the hospital.

On the 7th of June, (being twenty-five days after the patient's admission,) her husband brought her again. The tumour had much increased; it filled out the axilla, and a small mass had sprung up beneath the clavicle; the whole arm was œdematous, and presented an inflammatory aspect. The general health was, however, not materially worse, and no enlarged glands were observed. It was now debated whether the time for operating were not passed, and it was thought advisable to state to the patient, that if she wished to seize upon the small chance afforded by an operation, she might have the benefit of it. As she consented, with this warning, she was placed under the influence of chloroform, and the operation commenced.

Mr. Stanley began by making a large anterior flap of a horse-shoe shape, with the skin and sub-cutaneous tissue covering the deltoid muscle; he could take none of the muscular substance itself, for it was quite infiltrated with the disease. There was some difficulty in dislocating the head of the bone; when this was accomplished, the knife was inserted behind the head of the humerus, and the arm severed from the body, the parts surrounding the artery being divided in the last place. The vessel was so well commanded that not a drop of blood escaped from the main trunk, the hæmorrhage being altogether inconsiderable. The patient now became very pale and pulseless; brandy restored her, but it was discovered that some of the encephaloid structure had been left behind; Mr. Stanley proceeded to dissect it out, but was obliged to desist on account of the extreme feebleness of the patient's circulation, and from fear that death might occur on the operating table.

The patient was removed to bed, and brandy freely administered; still she remained in a very precarious state, and threw up most of the fluids which had been given. During the night, enemata of beef-tea were administered, and she remained the whole of the next day in an extremely weak state.

On the second day after the operation, however, the woman began to recover; she gradually, but very slowly improved, complaining for a long time of severe pain in the shoulder; the wound healed kindly, and on 10th August, about two months after the amputation, she went to Brighton for a change. There was not the slightest outward appearance of disease left, as the swelling under the clavicle had been absorbed; the patient, however, complained of much pain in the remaining arm, but this was considered of a neuralgic character.

We have since heard that this patient died early in 1852, about six months after the operation. It would appear that the small portion of diseased structure which was left unremoved, owing to the complete prostration into which the woman fell during the operation, was sufficient to form the nucleus of a renewed encephaloid growth, which slowly encroached upon the axillary and scapular regions, and finally led to the fatal termination of the case.

Appearance of the amputated arm.—On making a section through the humerus, isolated encephaloid deposits were found in the interior of the bone, and absorption of the osseous walls was just commencing. There was a large growth of encephaloid matter from the outer surface of the periosteum, and in removing this growth the periosteum became quite detached, leaving the bone exposed, this circumstance showing that the tumour had really sprung from the external surface of the periosteum. Nucleated cells were found in the morbid matter by the aid of the microscope.

ST. THOMAS'S HOSPITAL.

Gangrene of the Feet from Exposure; Amputation of both Legs; Recovery.

(Under the care of Mr. Solly.)

We have frequent opportunities of seeing cases of senile gangrene of the feet when paying our accustomed visits to the hospitals of this metropolis; but the pathology and treatment of these cases are so well understood, and there is so little difference of opinion on the subject, that no useful end would be served by recording any of these. When, however, the same portions of the frame are attacked by gangrene in the young, some attention to the cases may perhaps be of advantage.

And first, as to the pathology of the affection, we are told that the disease generally depends on the obliteration of the main arterial trunks of the part, which cuts off the supply of blood, and leaves a portion of the limb to perish. This obliteration is with the old supposed to depend on ossification of the vessels; and that such is frequently the case has over and over been proved by post-mortem inspections. Even before death, loose or firm osseous deposits may often be felt in the superficial arteries of the upper and lower extremities. But how is the obliteration brought about in the young? Mostly, if we do not mistake, as a consequence of arteritis, the vessel becoming plugged up with the fibrinous exudation excited by the inflammation of its coats. And here some analogy is seen to exist between gangrene of the feet and softening of the brain; for in both cases does the disorganization of the whole or a portion of the part affected, depend upon a diminished or totally arrested supply of arterial blood.

But a new field has, on this head, been lately opened by Dr. Kirkes, who has submitted his views to the Medical and Chirurgical Society, in a very important paper. Dr. Kirkes thinks that by actual cases, post-mortem examinations, reasoning, and analogy, he has established that—"1st. Fibrinous concretions on the valves of the heart admit of being readily detached during life. 2nd. That if detached and transmitted in large masses, they may suddenly block up a large artery, and thus cut off the supply of blood to an important part. . . . . 3rd. That the effects produced and the organs affected would be in a great measure determined by the side of the heart from which the fibrinous material had been detached: if from the right side, the lungs would bear the brunt of the secondary mischief; but if, as was most commonly the case, the left valves were the source, the mischief would be more widely spread, and might fall *on any part*, but especially on those organs which were largely and directly supplied with blood from the left side of the heart, as the brain, spleen, and kidneys." We do not allude to Dr. Kirkes' ideas as to the possibility of phlebitic and typhoid symptoms being excited by the fibrinous *débris* getting into the circulation; for we desire to centre our attention upon the subject in hand, and inquire whether the plugging of the main arterial branches of the lower extremities might not sometimes be occasioned by fibrinous masses derived from the heart, independent of ossification or arteritis.

If Dr. Kirkes' theory be admitted, as regards the brain, spleen, and kidneys, it may without violence be extended to the distal portions of the lower extremities, the more so as Dr. Kirkes has found, in some of the cases which are mentioned in the paper, the iliac arteries firmly clogged. Though these very ingenious views are not yet supported by actual proof, they certainly deserve the attention of the profession, both as to the important effects suggested by the author, and as bearing upon the disease under consideration—viz., gangrene of the feet in young subjects. Dr. Kirkes deserves great credit for his patient labours, and it will be as well, when we come in contact with cases like the one we are going to relate, to inquire minutely into the history of the patient, dwelling especially on the rheumatic or cardiac affections which he may have experienced.

The treatment of spontaneous gangrene in the lower extremity seems completely settled, and all surgeons agree that it is proper to wait until a line of demarcation is formed, so as not to run the risk of having a stump with diseased arteries. But we have seen, in some instances, the sphacelated parts ulcerate away completely, and the stump formed without the intervention of the surgeon's knife. There is, we fear, a certain amount of risk in adopting this course, for the long process of separation between living and dead portions of the limbs lays the patient open to that fearful complication known under the name of purulent absorption. Nor is this all, for the noxious gases resulting from decomposition may be very baneful, both to the patient himself and to his fellow-sufferers in the same ward, and thus do incalculable mischief. The surgeon has therefore to use his powers of discrimination, and seize upon the moment when the line is sufficiently marked to leave no doubt upon the soundness of the vessels above, and amputate a little beyond the ulcerated points. It will be seen that Mr. Solly adopted this course in an extremely weak patient with the best results, though under the necessity of taking off both legs at a very short interval. Here follows an account of this interesting case.

The history of the following case is that of a man who had led a very irregular life, and weakened the powers of his system by excesses of all kinds; he had for some weeks previous to the commencement of gangrene, been exposed to great privation, doing no work, and having no fixed habitation, nor regular means of subsistence; in fact, often passing the night in the streets, and getting very little food for days together.

William W——, aged thirty, was admitted into George's ward under the care of Mr. Solly, 13th Jan. 1852. He states that during the last three or four weeks his feet have been swollen, benumbed, and at times painful; and that ten days ago, he suddenly fell down, being unable to feel the ground. He was then taken to St. George's workhouse; and it has been ascertained from the surgeon who attended him there, that the distal extremities of the toes were then black; that the feet were swollen and painful, but without much heat or redness; and that the patient was labouring under great general debility. During his stay in the workhouse the gangrene advanced upwards, and on his removal thence, lines of demarcation were beginning to form.

On admission, the countenance had a pinched and haggard expression; the skin was hot, and covered with perspiration at frequent intervals; the tongue moist and white, and the pulse quick, weak, and jerking. The man had slept but little at night; was very thirsty, and had little appetite. The bowels had been regularly open.

Both feet were œdematous, the cuticle separating, the cutis mottled with all shades of black, brown, and green, and the surface cold and insensible to touch. On the right leg, about three inches above the malleoli, was a tolerably regular ulcerated ring of demarcation, completely surrounding the limb. Above this line the skin was sensible, rather red and tender when touched, especially at the inner side of the leg; but there was no hard cord, or other evidence of venous inflammation. On the other leg the process of separation was not so far advanced, there being some ulcerated spots at the inner and front part, but here their direction was nearly vertical, from the side of the ankle-joint to the sole of the foot; behind this line sensibility was perfect. The patient was ordered good diet and porter; and two grains of sulphate of quinine twice a day.

On the 16th of January, (three days after admission,) the report states: Pulse diminished in frequency, 96, and less jerking; skin cooler; bowels open; the man has rather more appetite, and slept a little during the night. The process of separation is going on: ulceration has extended upwards for about two inches on the inner side of the left leg;

behind, vitality is perfect as low as the heel, but in front only down to the ankle-joint; the tendons have not yet ulcerated through, and he is able to move the toes of both feet, though with pain.

Fourth day.—Last evening the pulse was again quickened. In the night the patient had some shivering, followed by cold sweating. This morning the pulse numbers 90; the tongue is moist, and brownish towards the root; the bowels have been open once. There is little change in the left limb, but on looking at the right, the redness at its inner side is seen to have extended in the course of the internal saphena vein as far as one-third up the thigh. For this extent the vein may be felt as a hard cord, and there is tenderness on pressure; in this upper portion, however, the vessel is pervious. On the anterior part of the thigh is a net-work of distended superficial veins, but there is no redness nor other sign of inflammation.

Mr. Solly ordered eight leeches to the part, and two grains of calomel, with one of opium, to be taken morning and evening. The diet was improved; four ounces of rum were allowed, and the wine increased to six ounces daily.

Fifteenth day.—Since last report the patient has gone on favourably; small abscesses formed at four points in the course of the vein, and were opened, and there have been no symptoms of the passage of pus into the circulation. The tongue is clean, the bowels regular, the appetite good, and the pulse stronger and less frequent. He has slept well at night by the aid of an opiate. The discharge from the ulcerated surfaces continuing to be very copious, and it being desirable to get rid of the decomposing animal matter, Mr. Solly, on this day, with Mr. Green's concurrence, amputated the right leg, below the knee, whilst the patient was under the influence of chloroform, making an anterior and a posterior flap; seven ligatures were employed, one of them being placed on a vein. The flaps were brought together by three sutures, straps of isinglass-plaster, and the stump then rolled. The man was then put to bed, it not being thought advisable to remove the other leg at this time. There had been but little hæmorrhage.

Twenty-first day.—The patient seems now to have recovered from the shock of the operation; his pulse has been as high as 156 per minute, very small and compressible, but is now only 120. He has taken stimulants and nourishment pretty freely. In the afternoon Mr. Solly amputated the left leg, with the assistance of chloroform; four ligatures were used, and the stump dressed as in the former instance.

Both stumps sloughed, and all the ligatures had separated on the tenth day; but by poulticing and carefully supporting the flaps, they were soon brought to a better condition; and the report states, that on the 17th of February, twenty-two days after the first, and seventeen after the second operation, they had begun to skin over. Up to this time the patient had taken his quinine regularly; opium at night; meat twice a day; two pints of porter; wine, brandy, and rum, together sixteen ounces daily.

March 9th, (forty-three days after the first operation.)—The stimulants and extra diet have been gradually discontinued, as have the quinine and opium. The stumps are skinning over, and the patient has not a bad symptom.

The amputated legs were examined as to the condition of the arteries; the appearances were the same in both. Opposite the lines of demarcation all the arteries were obliterated, but not ulcerated through, and for about an inch above them they contained unadherent dark coagula. No other morbid appearances were observable.

The above case shows very forcibly how much may be done by timely operation and the proper administration of stimulants. Nor should it be overlooked that this patient, though much debilitated, bore the chloroform well, and resisted the shock of two very serious operations, at five days' interval.

Encephaloid Disease of the Testicle: Removal of the Organ.

(Under the care of Mr. Le Gros Clark.)

From the consideration of encephaloid disease of *bone*, we shall turn for a moment to the same affection in the testicle. We see a great many cases of this kind in the hospitals of London, and beg to allude to a few of the more recent ones.

Robert S——, aged forty-four years, and a tailor by trade, was admitted June 8th, 1852, under the care of Mr. Clark. The patient had been twice married, has ten children, and generally enjoyed pretty good health. About three years before admission, the right testicle was caught in the chink left between two boards forming the seat of an arm-chair. This accident caused some pain in the part, but it soon went off, and it was only a twelvemonth after this injury that severe pain was felt in the organ, the latter having gradually enlarged. The pain, however, did not continue long, and soon disappeared altogether for another twelvemonth, when it recurred with redoubled intensity, assuming a decidedly lancinating character. The patient's wife bore him children during this period, and it is an interesting question whether the offspring are or are not at this time contaminated. The fits of pain became now more frequent, and lasted longer; but the tumour, though it increased much *in weight*, did not augment *in size*, the latter being about the dimensions of a clenched adult fist.

On the 19th of June, Mr. Clark removed the testicle in the usual manner, the glands in the groin being quite free. On a section, the encephaloid nature of the disease was distinctly seen, the proper structure of the gland being completely obliterated. On the 28th of June, nine days after the operation, the wound was almost healed.

Encephaloid Disease of the Testicle: Post-mortem Examination.

(Under the care of Mr. Green.)

Mr. Green had, some time ago, under his care, a patient suffering from encephaloid disease of the testicle and from phthisis. The existence of the latter affection precluded any operative proceedings, and we beg to adduce the post-mortem examination, for three reasons:—1st. Because it is sometimes thought that two specific diseases (cancer and phthisis) are incompatible. 2d. Because the patient exhibited the rare phenomena of cicatrized vomicæ. 3d. Because the testicle and the lumbar glands were contemporaneously affected with encephaloid cancer.

The post-mortem examination was conducted by Dr. Bristowe, demonstrator of morbid anatomy to the hospital.

Frederick D——, aged fifty-two, shorthand writer, was admitted Feb. 24, 1852, into George's ward, under the care of Mr. Green, and died April 7th, 1852. The testicle was as large as a cocoa-nut. The surface of the left lung presented several thickened and cicatrix-like marks; one at the apex had the ordinary appearance of cartilage thickening; and the lung structure beneath it was healthy. One or two of these, having distinctly the character of cicatrices, were found on the lower part of the upper lobe, and the lung structure beneath presented either small cavities in process of cure, (their surface assuming the appearance of a serous membrane,) or small, putty-like, calcareous deposits, surrounded by solidified lung structure. Two or three more cicatrices, with precisely similar characters, were found in the base of the lung. The pulmonary structure beneath was simply solidified, tough, and of a slate colour. There were one or two more solid patches in the upper lobe, which might have been caused by some old inflammatory or tubercular deposits. The right lung was slightly puckered at the apex, and presented a distinct cicatrix, with a large putty-like tumour beneath it. About the middle of the upper lobe there was a solid mass, partly made up of tubercular deposit, and partly of the results of inflammatory changes around it.

The intestines were partially displaced by a tumour, about as large as a cocoa-nut, situated in the lumbar region, and beneath the mesenteric vessels, by which it was divided into two lobes: the third portion of the duodenum was lifted up by it, and strongly adherent. The testicle and the tumour in the right lumbar region were continuous by a chain of enlarged glands. The surface of the testicle was smooth, but that of the tumour in the lumbar region was much lobulated; they both presented almost similar characters on section, being made up of diffluent pulp, resembling softened brain, at some parts of an opaque white colour, at others of a brick-red, from infiltration of blood. The tumour in the abdomen was made up of distinct lobules, corresponding to the originally distinct glands, the extravasated blood being here more abundant than in the testicle. The separation of the testis from the epididymis was distinctly marked, the latter being much enlarged, and affected with encephaloid disease, but still retaining traces of its original convoluted appearance.

Severe Neuralgia arrested by Surgical Operation.

(Under the care of Mr. Mackmurdo.)

The severe neuralgic symptoms which are sometimes observed in stumps are well known to practitioners; the latter are at the same time aware how difficult it is to control the pain, such a decisive measure as cutting out the bulbs of the nerves often failing in giving relief. An example of this obstinate kind of neuralgia was reported in a former number of The Lancet, and we now desire to mention another case of the same nature, but of a much milder variety than the first; it will, however, show equally well that the division of either the trunk or the expansion of a nerve may be followed by intense neuralgia. Still, as many nerves are thus severed without any unpleasant results, it may be supposed that either the mode of cicatrization or a peculiarity of the patient has a large share in the subsequent distressing nervous symptoms. We sincerely hope that the patient whose case we are going to relate, from the notes of Mr. Crosby, may not have to apply again on account of a recurrence of the neuralgia.

Catherine B——, aged fifteen, of dark complexion, regular features, and intelligent countenance, was admitted into Lydia ward, Jan. 17th, 1852, under the care of Mr. Mackmurdo, complaining of severe neuralgic pain in the thumb of the left hand, extending upwards along the arm to the shoulder. The patient states that when two years old her brother accidentally chopped off about half an inch of the extremity of her thumb; the parts healed, but, instead of a single nail, two made their appearance. These continued to grow side by side. There has been always more or less pain in that thumb when it was used in any exertion, and especially whilst sewing. Various means were employed to relieve the distressing sensations to which the girl was subject, but with very little result. At last (in October, 1851) she was admitted for the first time under Mr. Mackmurdo, seeking relief from the severe pain she was enduring.

The two nails were then of an angular shape, and pressure over them caused considerable pain, which extended up the arm and shoulder. Mr. Mackmurdo removed the nails, and dissected off the integument down to the bone, as it appeared to him that the nails were irritating the nervous expansion situated beneath them. Water-dressing was applied, the wound gradually healed, and the patient left the hospital entirely free from pain, and expressing much gratitude for the relief she had obtained. A few weeks after the girl's discharge, the two nails began to grow again, the severe pain recurred, and she applied for re-admission. Mr. Mackmurdo now thought that the neuralgia might be dependent on uterine sympathy, the patient not having yet menstruated; he therefore ordered steel and other tonics, with leeches to the breast occasionally. These means were persevered in for two or three weeks, but without the least benefit, the pain remaining very severe. Mr. Mackmurdo therefore removed the first phalanx of the thumb, so as to prevent all possibility of the appearance of any irritating growth. The wound healed kindly, and the patient left the hospital quite well and free from any pain.

It has been ascertained by inquiries, that up to the present time (about three months having elapsed since the operation) no recurrence of the neuralgic pains has taken place. Mr. Quekett has examined the ungual phalanx, and found it to present a carious appearance under the microscope.

It is important to bear in mind, that severe neuralgia may also occur from lesion of the nerve by violent inflammation of the surrounding parts, which lesion is made worse by the compression which the nerve subsequently suffers from the thickening of the parts around. We lately saw an example of this kind of neuralgia in a patient of Mr. Avery's, at Charing-cross Hospital. The subject is a young girl, about twenty years of age, who was attacked with severe inflammation of the theca and flexor tendon of the index-finger. Deep incisions were made, and on the subsidence of the acute symptoms, the first phalanx had become strongly flexed upon the finger, which latter was stiff, painful, and almost useless. The neuralgic pain was very intense, and the loss of power complete. These symptoms having lasted some time, Mr. Avery considered it urgent to remove the last phalanx of the index-finger. This operation, performed at the commencement of February, 1852, was followed by great improvement in the symptoms; the neuralgic pains have disappeared, and it may be hoped that the affection has been subdued by this timely surgical interference.

We noticed very recently a case of some analogy with the preceding, at Guy's Hospital. Mr. Hilton removed, June 23, 1852, the middle finger of the left hand of a woman, who several years before had wounded the extremity of that finger, the injured spot having ever since been the seat of intense neuralgic pain. The finger was carefully examined after amputation, and a distinct fusiform bulb was noticed on one side of the last phalanx, the bone being in the same situation somewhat carious. This woman was so overcome by the inhalations of chloroform, that she remained for four hours after the operation in a very precarious state, in spite of the most active revivifying means.

KING'S COLLEGE HOSPITAL.

Operation for Cicatrices from Burns, by Mr. Fergusson.

Those who see much of the surgical practice of hospitals are fully aware how seldom attempts at rectifying contractions resulting from burns are successful. We have seen many cases treated by very competent surgeons, which yielded nothing but disappointment: and it seems, indeed, in some instances, that the more the knife interferes with the cicatrix, the more the part tends to contract anew. This circumstance has probably led some surgeons to trust entirely to gradual stretching, and we have been shown admirable results of this method at the Orthopædic Hospital. We are glad to find, however, from the success of Mr. Fergusson's case, that a combination of the knife and extension is likely to lead to a favourable issue. The following notes were taken by Mr. Lawson, the dresser of the patient.

Martha S——, aged seventeen, single, was admitted Nov. 25, 1851, under the care of Mr. Fergusson. When six years old, while lighting the fire, the girl's gown caught fire, and her clothes were completely destroyed, burning severely both her arms, the upper part of the neck, and back. In about two years she was completely restored, but a great many cicatrices were left, causing great deformity.

On admission, one of these was found extending transversely between and under the two angles of the jaw, drawing down the bone and mouth towards the sternum, and preventing the patient from closing her mouth. There were, besides, some large cicatrices on both arms, from the elbows to the hands, and several on the back and shoulders. In the centre of the cicatrix of the neck, a circular aperture was noticed, about the size of a silver fourpenny piece, which was caused by an involution of the skin forming a *cul-de-sac* about one inch deep. Either way beneath the cicatrix on each side of this sac, were the two firmest bands which were drawing down the chin.

On Dec. 13th, 1851, Mr. Fergusson passed a knife into the sac, and made a V-shaped incision on each side of it, thus dividing the two strongest bands of the cicatrix, and then dissected each of the flaps backwards. In this manner, the fold of skin which formed the sac was unravelled, and the girl could now extend the neck. On the next day the latter was kept extended by means of pillows placed under the shoulders, the head being allowed to hang backwards over the bolster. Three days afterwards the neck was still more extended by means of a double bandage passed round the forehead; the extremities of the roller being turned in the figure of 8 beneath each axilla, and over the shoulders.

Six days after the operation, the wound looked much larger, and with an effort she could close her mouth. The patient thus progressed favourably for about four months, when the movements of the head had become quite free, and she was discharged in a favourable condition.

Caries of the Tuberosity of the Ischium; Removal of Necrosed Bone; Caries of a portion of the Ilium; Withdrawal of a Loose Portion of Bone through an opening made at a distance from the Fistulous Tract.

(Under the care of Mr. Fergusson.)

Very unsatisfactory are oftentimes the attempts at removing portions of carious bone; it happens but too frequently that the process of disintegration is not sufficiently complete to allow of the removal of either the detritus or a loose fragment. Though this disappointment is not of rare occurrence, some good generally results from the exploratory incision, for the loss of blood, and the gouge, excite a new and sometimes beneficial action in the part. These remarks are suggested by a case treated by Mr. Fergusson, which tends to show that the faintest indications pointing to carious bone should be carefully attended to.

The patient is a woman about forty years of age, who was admitted June 7, 1852. On a cursory examination it was supposed that she was labouring under fistula in ano, and the opening into the bowel was thought to be situated very deep. On passing the probe along the fistulous tract, no opening into the rectum was found; but the fistula was laid open in the direction of the bowel. It was now found that the course taken by the tract was very deep, towards the tuberosity of the ischium, and Mr. Fergusson detected bare bone with the point of his finger. The opening was now enlarged with great caution, for as the tissues were yielding towards the obturator foramen, Mr. Fergusson was apprehensive of wounding the internal pudic artery. The bones are so deeply situated in this region that it was found extremely difficult to reach the ischium, but after a few cautious trials, Mr. Fergusson succeeded, by using a little force, in removing a piece of the tuberosity, about the size of a pigeon's egg.

Mr. Fergusson remarked that he did not recollect having ever removed this process of bone, and it was no small satisfaction to him, that by perseverance he had succeeded in freeing the patient from this dangerous source of irritation. This case reminded him of another, where a young man had for some time suffered from all the inconvenience of a fistulous tract towards the lower part of the spine. Mr. Fergusson, suspecting that some portion of the crest of the ilium was affected with caries, made an incision some distance to the outer side of the fistulous aperture, and, having found rough bone, withdrew a loose part of the crest, after using but very gentle force.

We fully recollect having seen the last-mentioned operation, and were, like all those present, surprised at the result. The patient has done extremely well, and it is therefore not too much to suppose that a similar success will attend the case first related.

Strangulated Femoral Hernia; Operation by Mr. Gay's Method.

(Under the care of Mr. Fergusson.)

The method advocated by Mr. Gay, of making the incision, in cases of strangulated femoral hernia, at some distance from the tumour, seems to be gaining ground. We find that Mr. Fergusson lately operated in this manner with complete success, and we proceed to lay the particulars before our readers.

Ann W——, aged fifty-seven, was admitted under the care of Mr Fergusson, April 24, 1852. She had been affected with femoral hernia for the last twelve years, and had never worn a truss. She applied to the hospital in great distress; the bowels had not been relieved for a week; and for the four previous days she had had stercoraceous vomiting. The taxis and warm bath were tried inefficaciously, and Mr. Fergusson operated without further delay, according to Mr. Gay's method.

An incision, an inch and a half wide, was made at the inner side, and close to the neck of the sac; this was sufficient to allow Mr. Fergusson to reach the strictured part with his finger. Gimbernat's ligament was now divided without opening the sac, with a probe-pointed bistoury gliding upon the finger, and the strangulated intestine was returned without much difficulty.

The patient was ordered a sedative draught: she passed a good night, and the bowels were opened three times the next day. About a month after the operation the wound was quite healed, and the patient was discharged in a very satisfactory condition, forty-six days after her admission. This case offers a very good illustration of the good results to be expected from a method of operating which will no doubt be more and more appreciated by practical surgeons.

Encephaloid Cancer of the Testicle: Removal of the Organ.

(Under the care of Mr. Partridge.)

This patient, who is about thirty years of age, and of dissipated habits, has been suffering pain and uneasiness in the testis for the last two years. The affection had first been considered as hydrocele, and he had been tapped both by Mr. Henry Lee and Mr. Partridge. It became, however, evident that the accumulation of fluid was only incidental to a disease of the testicle. The man was re-admitted under the care of Mr. Partridge, in April, 1852, and as the tumour had much increased in size, and the lymphatic glands were not affected, Mr. Partridge removed the whole mass on the 1st of May. Before commencing the operation, a puncture was made so as to ascertain the nature of the growth; and as it was found solid, no fluid but a little blood escaping, the nature of the disease became sufficiently plain, though it still might have been encysted varicocele.

Mr. Partridge expressed a fear that sooner or later the disease would recur in the lumbar glands. On a section of the mass, which was about the size of an adult fist, all the characters of medullary cancer were distinctly seen. It should, however, be remembered, that in this case, as in a great many others, the accurate resemblance to brain cannot be said completely to exist, as the encephaloid structure in the testicle is much more resisting than brain substance. The patient has done extremely well; and it is to be hoped that he will not have soon to apply for re-admission.

ST. MARY'S HOSPITAL.

Traumatic Stricture of the Urethra; Treatment by Dilatation, and subsequently by Incision; Chorea; Death; Autopsy.

(Under the care of Mr. Coulson.)

The present patient laboured under the consequences of a severe injury to the urethra, and presented that melancholy series of symptoms which is so well known to every practitioner. The usual treatment adopted in such cases is to keep the urethra as pervious as possible by the use of bougies; endeavour to overcome retention of urine by the employment of catheters; and finally, to make an opening in the perinæum, if no instrument can be passed. It has certainly struck many a surgeon that this method does not always lead to a cure, and that it has very often caused great disappointment. The cicatrix which forms after a wound of the urethra is so apt to contract over and over again after careful dilatation of the canal, and such complete changes often occur in the course and relations of the latter, from traumatic causes, that the above-mentioned practice must very often fail in re-establishing the integrity of the urethral function. There are, indeed, such desperate instances of the kind, that they do but very badly in the most skilful hands; and such considerations evidently lead practitioners to inquire, whether, in the extreme cases of which we are treating, there might not be some way of rendering the patient's situation tolerable, if it is found impossible to obtain a complete cure.

Many a surgeon must certainly have thought, before this, that in cases where the canal of the urethra is completely spoilt, where re-establishing its continuity is a matter of impossibility, it might be better to contrive some artificial outlet for the renal secretion, than to make repeated attempts at rectifying the state of the natural canal, when these endeavours are not likely to be crowned with success. In a word, is it not better to establish a permanent or temporary opening over the pubis, or through the rectum, than run the risk of all the dangers which accompany frequent attacks of retention? A temporary artificial outlet may, by affording the urethra complete rest, favour a return to the original state of parts; and if the urethra is so much injured as not to be amenable to treatment by dilatation, even after several weeks' rest and freedom from the passage of instruments and urine, the best plan would seem to be to render the temporary outlet permanent.

That the urine may be discharged for a long period from an opening over the pubis, is proved by a case of Mr. Lloyd's, at St. Bartholomew's Hospital. The patient has now used a canula in the pubic portion of the bladder for the last *twenty years;* and that none of the functions are thereby prevented, is proved by the fact, that the last time we saw him at St. Bartholomew's, he was under the treatment for syphilitic iritis.

That the formation of an artificial urethra is an operation which may be fraught with some danger, we are free to admit; but we merely suggest that in very bad cases it might perhaps be tried. The one which we are going to relate does not exactly come under this head, for the patient died of chorea; but the case will accurately illustrate the host of difficulties which are in these instances besetting the surgeon, and show that in the most skilful hands they are hardly to be overcome by the methods at present in use. We shall soon have an opportunity of recurring to the operation of puncturing the bladder, either above the pubis or through the rectum, as the hospital surgeons of this metropolis are, with regard to this subject, divided into two camps, where completely different opinions are held, as was shown by the late discussion in the Medico Chirurgical Society. We hasten, in the meanwhile, to give, from the notes of Mr. Bullock, house-surgeon to the hospital, a sketch of Mr. Coulson's case, which strikingly exemplifies all the phenomena connected with traumatic stricture.

J. D——, aged sixteen years, strumous-looking, very nervous and excitable, and accustomed to farming work, was admitted into Albert ward, under the care of Mr. Coulson, Dec. 12, 1851. It appears that, eighteen months before his reception into this hospital, the wheel of a heavy cart passed over the patient's pelvis, taking a course from between the thighs over to the left ilium. He states that the perinæum and the scrotum swelled immediately to a considerable extent, and as he had great difficulty in passing his urine, a catheter was introduced, and the same operation repeated several times a day for a week, after which period he could empty his bladder without assistance. One month after this period, difficulty of micturition occurred again, and the patient was then admitted into University College Hospital, where instruments were regularly passed for about six weeks.

Being now much improved, the boy left the hospital, and continued well for about two months, when the urine began to dribble from him. He therefore applied again at University College Hospital, when some trouble was experienced in passing an instrument. The patient was now successively in-and-out-patient at University College Hospital, getting alternately better and worse, until an abscess formed in the perinæum. The pus was then freed, and the urine continued for several weeks to pass through the wound. The latter finally healed up, and the patient left the hospital in tolerable condition. His troubles were, however, not yet over; for, a little time, afterwards, Dec. 12, 1851, as above stated, he presented himself at St. Mary's Hospital, with complete retention, no urine having been passed for fifteen hours.

He complained of severe pain in the abdomen, loins, penis, and anal region; his countenance was pale; pulse 120; respiration, 38. In the median line of the perinæum, a linear cicatrix was observed, resulting, in all probability, from the incision which is mentioned above. The boy, as we stated, "in limine," being very nervous and excitable, begged that chloroform might be used before the catheters were tried; he was therefore narcotized, and No. 7 passed down to the perinæum. Further than this the instrument could not be introduced, and when No. 2 was used it took an abnormal course, running seemingly to the left of the urethra in the vicinity of the bladder, and a little milky fluid, followed by urine, was discharged. As the impediment could, however, not be overcome, chloroform was soon afterwards administered again, and the urethra opened from the perinæum. This operation was far from being easy, as no staff or guide could be passed through the proper canal, all the instruments deviating from the right course, and passing down by the side of the rectum. The amalgamation of the structures resulting from former operations was also a source of embarrassment; but at last Mr. Coulson succeeded in passing a female catheter into a part containing urine. About three ounces were now evacuated through the instrument, which latter did not, however, seem to have gone into the bladder, as that viscus remained distended. But after the boy had been removed to bed, the urine dribbled freely away from him.

Opiates were regularly administered, and for the next nine days the urine passed through the wound in tolerable quantity; the bladder became gradually distended, and the boy gained a little strength.

Mr. Coulson now enlarged the wound, and attempted to reach the bladder with a No. 2 gum-elastic catheter; the instrument passed down for a pretty long distance, but no urine flowed through it. In bed, however, urine came through the catheter and the wound, and soon afterwards principally through the former. About eighteen days after this the boy complained of much pain; the catheter was therefore removed, and found thickly coated with phosphates.

The patient now went on for about seven weeks with very trifling alternations in his state, and was then allowed to leave the hospital for a little while, to recruit his health, the urine passing pretty freely through the wound in the perinæum. He was re-admitted one month afterwards, in about the same state as before; and Mr. Coulson, whilst the patient was insensible with chloroform, introduced a director into the meatus, and passed it along the urethra almost to the opening in the perinæum, enlarged the wound so as to expose the point of the director, and introduced another staff into the bladder through the perinæal aperture. A No. 3 silver catheter was now glided down through the meatus across the wound in the perinæum, through the canal leading from the latter into the bladder, and a considerable stream of urine flowed through the instrument. The silver catheter was then retained, and a full opiate given.

The urine for several days afterwards came freely through the catheter, when the patient, about a week after the last operation, became very nervous, removed the catheter partly during the night, and began to imitate a boy affected with chorea lying a few beds from him. From this time to the patient's death, a period of about a month, the choreaic affection went on increasing in intensity, his skin being fretted and excoriated by the continuity and violence of the movements. Catheters could now and then be passed, but the stream remained very imperfect.

Post-mortem Examination sixty-eight hours after death.—There is extreme emaciation; the face, neck, and upper part of chest present a spotted appearance, from the discharge being dried up on the parts from which the patient had torn the cuticle during life. The skin over the occipital bone is abraded in several parts; the lips have a fissured appearance: there are small sores on the outer side of the knee, hip, elbow, and metacarpo-phalangeal articulations of the right side; the same is seen on the left, where the sore over the elbow is deeper, extending down to the muscles. The skin over both hips and sacrum is red and abraded, though there is no appearance of sloughing; the wounds of scarification are not healed. After sawing through the calvarium, there was some difficulty in removing the skull-cap, owing to firm adhesions between it and the dura mater at the occipital and posterior part of parietal bones. The superficial vessels were congested; the brain itself firm and healthy, as were also the ventricles. Some effusion was observed within the theca of the spinal cord; the latter itself was, however, firm. No pleural adhesions on either side. Lungs healthy. The valves of the heart were sound, except the mitral, at the base of which, along its auricular margin, there were numerous, small, irregular, fibrinous vegetations. The cavities of the organ were filled with firm fibrinous clots, but the structure was in a normal state. Intestines small and empty. Liver firm and pale. The kidneys, being examined under the microscope, gave great evidence of chronic inflammation. A catheter was easily passed into the bladder per urethram, being seen in its course to traverse the perinæal wound, which is half an inch in length. The catheter had a great tendency to run to the left of the median line; a probe could also be passed onward from the wound into the bladder; the former, on a close examination, presented a healthy appearance. The bladder was contracted; its coats being nearly an inch in thickness. Between the lower part of the sacrum and rectum, an abscess was observed about the size of a bantam's egg, which communicated with the urethra by means of a false passage, commencing in that canal just as it passes under the arch of the pubis. This false passage ran to the left by the side of the rectum into the abscess, a part of the passage appearing to be formed by the urethra itself. From the abscess a catheter could be introduced into the bladder. Above this and in the median line was another passage, which led into a cavity behind the pubis; this was of considerable extent, and communicated with the above-described passage as well as with the bladder. The cavity was only separated from the peritonæum above by the anterior ligaments of the bladder, and lay between the anterior wall of the bladder and the posterior surface of the pubes. From this there was a third passage, running through the descending ramus of the right pubis, which had apparently been fractured near the junction with the ascending ramus of the ischium. It appeared that union had taken place, with the exception of this passage, which led to a small abscess near the outer margin of the obturator foramen into the adductor brevis muscle. Both the descending ramus of ischium and the descending of pubis were much thickened, and larger than those of the opposite side, and at the posterior surface there was a projection of new bone into the above-mentioned cavity.

Fracture of the Humerus: Delirium Tremens: Death: Autopsy.

(Under the care of Mr. LANE.)

WE desire to draw our readers' attention for a few moments to the effects of trifling injuries upon patients who are addicted to intemperance, especially when the accustomed stimulus is suddenly withdrawn. There is no novelty in these facts, and they are so well acted upon by hospital surgeons, that cases of delirium tremens after injury occur very rarely. Patients who have been used to an excessive amount of strong liquors are generally supplied in a moderate degree with the beverage they have mostly indulged in, and thus a very unpleasant complication is generally avoided. The soundness of this practice will be made strongly manifest by the following case, where the usual precaution was not resorted to, as the patient was not admitted into the house at first, and could therefore not be watched, the more so as he did not attend as he had been desired. It is not usual in our large hospitals to give such persons a bed, who are affected with a simple fracture of the arm. Here is the case, as recorded by Mr. Bullock, house-surgeon to the hospital:—

Francis G——, aged thirty-seven years, was admitted into the accident ward in April, 1852, under the care of Mr. Lane. Two days before admission, the patient had fallen from a ladder, and fractured the right humerus, just below the insertion of the deltoid. The limb was at that time put up in the usual way, and the man desired to attend regularly. He was brought to the hospital two days after this, in a state of violent delirium; he had been raving all night, had torn the splints from his arm, which latter was much ecchymosed and swollen. It was now found out that the patient had been very intemperate in his habits, and that his master had not allowed him to take any beer since the day the accident had happened.

The patient was immediately put to bed; he took thirty minims of Battley's solution with half a drachm of aromatic spirit of ammonia in camphor mixture, and the arm was carefully put up in splints. Ordinary diet and two pints of porter were at once ordered. The opium produced a sedative effect for a few hours, but in the middle of the day the delirium came on again, and the man twisted and turned the injured arm in a violent manner. The same draught was immediately repeated, and three ounces of brandy prescribed. Three hours afterwards the fit broke out again, some rest having been procured by the draught. The doses of opium were now repeated every two hours, but in vain; the violence of the delirium was followed by prostration, and the patient died in the night, about sixteen hours after admission.

As is usual with such cases, no post-mortem appearances of importance were detected; as to the arm, nearly the whole of it was of a mottled blue colour; there was a nearly transverse fracture of the humerus, just below the insertion of the deltoid, the ends not being in approximation, as might easily be expected. The elbow-joint was anchylosed from previous disease.

We lately noticed a case distinctly analogous to the preceding, at King's College Hospital. The patient was a young girl placed under the care of Dr. Todd, and was admitted with delirium tremens, brought on, it would appear, in the following manner:—The patient, endowed with great personal attraction, had unfortunately been in the habit of drinking spirituous liquors to excess. Some time before she came to King's College Hospital, cough and pain in the chest came on, and were after a little while so troublesome, that the girl applied to a physician, who advised the proper medicines and more regular habits. These rules were followed, and the patient soon requested admission into the hospital, labouring under delirium tremens, which had been superadded to the chest affection. The latter turned out to be phthisis; the cerebral disturbance could hardly be controlled by opium and stimulants, and the girl sank under the effects of the two affections. The diagnosis was verified by a post-mortem examination, and it naturally struck those who were acquainted with the history of the case, that a less sudden change of habits might have kept off the delirium tremens, and rendered the progress of the tubercular affection less rapid.

Peripatetic Parturition.

The following case will show under what trying circumstances parturition may sometimes be effected, with a total absence of untoward results for the mother.

Sarah P——, aged twenty-one, servant of all work, was admitted May 22, 1852, at eleven A.M., having a six months' child hanging between her legs, and the placenta in the vagina. She stated that pains had come on at five o'clock in the morning, whilst she was in bed at her place of abode. She got up at half past seven, and between half past eight and nine a child was born. At about ten o'clock she went out to a surgeon, who told her to go to the hospital. Mr. Bullock, house-surgeon to St. Mary's, examined her, and found a tense cord issuing from the vagina, and following this downward, he found a child, bearing the marks of five or six months' uterine life, close to the woman's ankles. She must, in fact, have been walking with the fœtus hanging as described, for half an hour at least. Mr. Bullock cut the cord, removed the child, which was quite dead; and, after withdrawing the placenta from the vagina, had the woman conveyed to bed, where she has since done well.

Aneurism of the Left Carotid Artery close to the origin of the Vessel; Brasdor's Operation.

(Under the care of Mr. LANE.)

AN aneurism of the arteria innominata, or of the carotid low down, is generally considered as an incurable affection, and we have of late seen two cases of this kind where none but palliative means have been employed. And yet does not Brasdor's operation offer some chance of prolonged life? Has it not several times been successfully performed? It has no doubt failed in several instances, but so does sometimes the Hunterian operation, so does compression; but these measures are nevertheless extremely valuable and frequently resorted to. We heartily wish that Mr. Lane's case may be successful; for not only will his patient derive benefit from this operation, but other surgeons will be encouraged to adopt Brasdor's operation, which may thus be the means of rescuing many an unfortunate patient from his otherwise certain doom.

The principal objection brought against Brasdor's operation is the almost certain unsound state of the artery close to the aneurismal tumour, in which region the vessel must be tied, in order to avoid doing so *beyond* a collateral branch. The ulceration and hæmorrhage which may then occur are certainly very dangerous complications; but it must be confessed that the common carotid artery is favourably circumstanced in this respect, for no branches of importance are normally given off before the bifurcation, so that the ligature may be applied at some distance from the tumour, supposing the latter to be situated close to the origin of the artery. It is true that the common carotid itself sometimes gives off the different branches of the external, and continues its course at the internal carotid (Harrison;) but these are exceptions which cannot be taken into account. Here follow a few details of the case now under Mr. Lane's care.

The patient is a man about thirty years of age, who for the last six months has experienced some pain and uneasiness in the left shoulder. This was of course attributed to rheumatism, and matters went on without much change until five weeks before the present operation, (which took place on July 7, 1852,) when the patient noticed a pulsating tumour on the left side of the root of the neck, and experienced at the same time a certain amount of dysphagia and dyspnœa. The situation of the tumour, the pulsations, and the bruit, left no doubt as to the nature of the affection; and as it was impossible to tie the artery between the heart and the tumour, Mr. Lane made up his mind to give the patient the benefit of the chance of recovery afforded by Brasdor's operation. Accordingly, on the 7th of July, the common carotid artery was tied above the omo-hyoid muscle, and close to the bifurcation. The coats of the vessel were found in a tolerably sound state; no embarrassment was experienced, except from a rather large venous trunk, situated on the internal side of the vessel, and no immediate cerebral symptoms followed the operation, which was performed with the aid of chloroform. After the patient was removed, Mr. Lane addressed the gentlemen present, and explained his views concerning the operative measure to which he had just had recourse.

Mr. Lane stated that Brasdor's operation had been performed by Wardrop, Deschamps, Sir Astley Cooper, and others, and that the want of success in these cases had principally been owing to pretty large branches being given off between the ligature and the tumour. In 1825, three or four years before Brasdor operated, Mr. Wardrop had twice tied the common carotid artery at the distal side of the aneurismal tumour; one case was successful, the other the reverse. Mr. Lambert had operated in the same manner, and the case had been temporarily successful, the woman dying two months after the operation from hæmorrhage. A fourth operation of this kind had been recorded of Dr. Bush, of New York, the result having been stated as favourable; and Mr. Lane had heard, though he could not vouch for the fact, that Brasdor's operation had also been successfully performed at the Mauritius. He would remark, *in limine*, that in most of the cases which had been recorded, the tumour was situated on the *right* side of the neck, whilst in the present case it was on the left. The patient had before the operation no chance of recovery, or a very small one; and it might be reckoned that in two or three months the tumour would have given way, so that the ligature just applied was the only earthly means of giving the man some chance of escaping a premature end.

It was well known, continued Mr. Lane, that the object of the proceedings which the gentlemen present had just seen, was to obtain the coagulation of the blood in the sac, so that from a cavity it might become a solid tumour. Hunter tied the artery between the heart and the tumour, to promote the solidification of the sac; the same end was aimed at in Brasdor's operation, but in a different way. (Here Mr. Lane very appropriately used the board and chalk to illustrate his meaning.) By applying a ligature high up to the carotid artery of a horse, which vessel is, in this animal, two feet in length, a coagulum will be formed down to the arch of the aorta, from the blood being delayed by means of the ligature, as will also happen close to the latter, provided no branch be given off between the aorta and the ligature. When such branch is given off, the blood will of course remain fluid. In the present case there was only an inch between the tumour and the bifurcation; Mr. Lane had tied the artery, close to the latter, but had the space been less, he would have applied his ligature to the internal carotid.

Mr. Lane stated that he had thought it prudent, before the operation, to take blood from the patient, so that the impulse of the circulation upon the sac might be somewhat diminished. The venesection would have to be repeated several times during the treatment, and he would keep the patient upon spare diet to lower the force of the current of arterial blood, and thus favor coagulation in the aneurismal cavity. Mr. Lane thought that the patient was now exposed to several risks. 1st. The cicatrix, as in Mr. Lambert's case, might ulcerate, and arterial hæmorrhage prove fatal; but still there was, in the present case, a good half-inch between the ligature and the bifurcation, the risk being therefore somewhat less. 2nd. The sac and vessel might inflame, and the mischief even run down to the arch of the aorta. 3rd. Purulent deposits might take place and render the issue unfavourable. But these risks could hardly be weighed with the certainty of the man's doom had no operation been attempted. Mr. Lane hoped that even by the next day the tumour would be found diminished, as the force of the heart would, from the obstruction offered by the ligature, be exerted on the other vessels springing from the arch of the aorta. He would be very happy to acquaint the profession with the result of the case.

The patient has, up to the sixth day after the operation, progressed pretty favourably, venesection not being so frequently repeated as had been anticipated. Ice is applied over the tumour to favor coagulation, and it is not improbable that the case will have a successful issue.

Injury to the upper part of the Left Arm; Amputation at the Shoulder-joint; Death.

(Under the care of Mr. Coulson.)

The notes of this case were taken by Mr. Bullock, house-surgeon to the hospital.

E. H——, aged four years and eight months, who is stated to have been an unhealthy child, and to have suffered from chest affection, was admitted at nine A. M., March 8th, 1852, under the care of Mr. Coulson, with a compound comminuted fracture of the left arm. It appeared that the girl had been run over by an empty railway truck about fourteen miles from the hospital, and was brought up by railway. She was considerably collapsed, the surface of the body was pale, and the feet cold; the child was perfectly quiet; she had been so since the accident; and she had not lost any blood.

On examination, a lacerated wound was perceived, which extended nearly the whole length of the arm on its anterior and inner surface; the bone was extensively comminuted from the elbow-joint (into which the fracture extended) to within an inch and a half of the shoulder-joint, the muscles being nearly all torn through, except at the posterior part. The artery seemed to have escaped; the wound extended nearly up to the acromion process, but the child could move her fingers. No hæmorrhage had occurred. At eleven A. M., the little patient had somewhat rallied, and amputation at the shoulder-joint was therefore performed, chloroform having been previously administered by Mr. Trotter. No definite mode of performing the operation could be adopted, on account of the laceration of the integuments; the principal flap was made of the deltoid, and a smaller inner one was taken from the soft parts towards the chest. The subclavian artery was compressed by the thumb on the first rib, and very little blood lost during the operation. Several vessels were tied, and the edges of the wound brought together with sutures and a few strips of plaster; and the stump was lightly bandaged to the side.

The circulation was very feeble, and the child still lay very quiet. Ordered three minims of laudanum, strong beef-tea, some milk, and port-wine. About five P. M. the chest was examined; there was mucous rhonchus, without any fine crepitation, in both lungs; the respiration became slightly wheezing, the pulse rapid and feeble. At ten P. M. the rhonchus increased, and the patient became restless. She had wine more frequently, and small doses of laudanum in camphor mixture; but in spite of support, a mustard poultice to the chest, &c., the restlessness and dyspnœa increased, and the child gradually sank, and died the next morning.

On a post-mortem examination, old adhesions of the right pleura were found; the lungs were somewhat congested, and the bronchi contained a large quantity of mucus, the lining membrane being highly injected. The other organs were healthy, and no adhesive matter had been thrown out between the flaps at the shoulder.

LONDON HOSPITAL.

Abscess of the Lung following Pneumonia; Death; Autopsy.

(Under the care of Dr. PEREIRA.)

THE formation of abscess in the lung as a consequence of pneumonia is considered a very rare occurrence; but it is probably still more rare to find a circumscribed accumulation of pus in the pulmonary tissue taking on a semi-gangrenous character. Such events seem in some degree to exclude each other; for the vigorous exudation indispensable for hemming in purulent matter can hardly be contemporaneous with sphacelus of the lung. However this may be, it is plain that in constitutions brought to a state of great debility by excesses, the most unusual pathological phenomena will spring up; and these being at all times instructive, we shall just, from the notes of Mr. Whitby, relate the following case:—

John A. T——, aged forty, formerly a solicitor, married, and the father of four children, was admitted, January 18, 1852, under the care of Dr. Pereira. The patient is of a dark and sallow complexion, thin, weak, and exhibiting all the signs of a deteriorated constitution; his habits have been very intemperate, the chief beverage he indulged in being spirits. His health had, however, been tolerably good, until about five months before admission, when he was seized with pain in the right side of the chest, increased by a full inspiration; his habitual cough became very troublesome, the expectoration profuse, and of an offensive odour, pretty similar to that which was noticed on his admission. No medical aid was sought until three weeks since, when rigors had set in; which the patient tried to conquer by large potations of gin-and-water. The pain in the right side of the chest was then somewhat relieved by blisters, &c., but he was soon obliged to apply for admission into the hospital.

When first seen, the patient complained of cough and abundant expectoration; his voice was hoarse, the breath very short, the countenance anxious and sallow, the bowels relaxed, but the appetite still good. The tongue was furred and moist, with an unpleasant taste in the mouth; the pulse rapid and small, and the urine abundant, but very ammoniacal.

On examination of the chest, dulness was found over the right sub-clavicular and mammary regions, the corresponding parts on the left side being resonant; respiratory murmer, indistinct over a great portion of the right side of the chest, both anteriorly and posteriorly, whilst it was puerile on the left. To the right of the central part of the sternum a peculiar tremulous sound is heard, which has much resemblance with the pulsation of a large vessel through a cavity containing fluid. This sound was not, however, constantly noticed, nor could it be excited by any particular position of the body. The patient was aware of this peculiar bruit; he could himself hear it, and compared it to the noise made by water bubbling from the lid of a tea-kettle. The action of the heart was accelerated, but no other irregularity was detected. As to the voice sounds, pectoriloquy was heard at the base of the right scapula. When inquiring about the patient's sensations, it was found that the right side of the chest was painful, and that the cough was extremely troublesome when he lay on his left side, the easiest posture being the slightly raised dorsal decubitus.

Dr. Pereira ordered bark and ammonia to be taken three times a day. The symptoms continued pretty well unaltered for the next few days, during which the patient took, first, chlorate of potash, and subsequently small doses of sulphate of quinine and morphia. The sputa remained of the same nature, the perspirations at night became very profuse, and the relaxation of the bowels could hardly be restrained by logwood and chalk. Thus the patient progressed for about three weeks, the amphoric murmur on respiration being audible over the right side of the chest, and the heart's action being accompanied by a peculiar gurgling and undulatory sound.

From the physical signs, and the nature of the symptoms which had existed previous to the patient's admission, it was assumed that he had suffered from pleuro-pneumonia, which had resulted in abscess of the lung, with adhesion of its walls to the parietes of the chest, besides effusion into the cavity of the pleura. Thus was a tremulous sound produced with each impulse of the heart, resembling the vibration produced by tapping a phial containing air and fluid. Twenty-six days after admission, the patient died suddenly, after expectorating a large quantity of very offensive matter.

Post-mortem Examination.—On viewing the chest, before proceeding to the inspection of the thoracic viscera, it was observed that the right side was larger than the left, and presented a rounded appearance, with the filling up of the intercostal spaces. The thorax, when opened, was found completely filled with pus of a very offensive odour. A large abscess was situated in the right lung, the outer wall of the cavity being adherent to the pleura costalis; and running in front of the lung, in a transverse direction, was a broad sinus of communication, extending to the middle mediastinum, which region might be considered as the internal boundary of the abscess. The substance of the lung contained a large quantity of mucus, mixed with air and pus, as well as small tubercles and pieces of lymph. The bronchial tubes were filled with matter similar to that contained in the abscess, and the lung was adherent over its whole surface to the parietes of the chest. The left organ was perfectly healthy, but the cavity of the pleura contained about five ounces of serum. The heart was pale and of lax fibre, but otherwise in a normal condition.

It is clear that the certain changes in the walls of the above described abscess, or a decomposition of its secretion, must have given rise to the fœtor so characteristic of gangrene. The latter did not, however, exist in the manner usually seen, namely, a crumbling down of the pulmonary tissue, and a dark livid colour of parts. A circumstance which is finally worthy of record is, that the fœtor had existed from the commencement of the purulent secretion.

ROYAL FREE HOSPITAL.

Case of Bite from a Viper; Severe Symptoms; Recovery.

(Under the care of Mr. Thomas Wakley.)

We happily do not frequently see, in our temperate climes, the terrible effects upon the human economy, of the venom of the snake tribe. These effects have been often described, and are well known. We would, however, remind our readers that a case of the kind was published in this journal some time ago which shows very forcibly how thoroughly the poison of the snake, in Australia, pervades the blood, and how decidedly narcotic are the symptoms. It will be perceived, by the following case of viper-bite, that the venom, though acting locally with great power, does not depress the system, as happens with the poison of the snake in warm climates. The particulars were noted by Mr. Lane, house-surgeon to the hospital.

Charles V——, aged twenty-two years, a farmer's labourer in Kent, was admitted, May 23, 1852, under the care of Mr. Wakley. He stated that on the previous day, whilst in a wood in his native county, he had been bitten by a viper on the back of the hand, and that sharp pain had immediately shot up to the arm and shoulder. The wound made by the reptile bled slightly, and the pain did not prevent the patient from following the animal; he succeeded in seizing it, put it to death, and having opened the abdomen, took out some fat situated therein, and, according to popular custom, began rubbing it upon the wounded hand. Whilst he was engaged in doing this, the latter began to swell considerably, and having a quarter of an hour afterwards reached a smith's shop where adder-oil was kept, he had frictions made with it upon the wounded part. At this time the patient suffered great pain, the stomach rejected the food which he had recently taken, vomiting of a greenish-yellow fluid continued for two or three hours afterwards, and great prostration of strength came on.

When the patient applied to the hospital the next day, the arm was considerably swelled as far as the elbow, and vesications were apparent at the back of the hand; but the constitutional disturbance had much diminished, and the pain had greatly abated. He was ordered four grains of calomel and one of opium, to be taken immediately, and a saline draught every four hours. The arm was also directed to be rubbed four times a day with a liniment of oil and ammonia.

On the second day, it was found that the patient had had a good night, and that the bowels had been freely relieved. The swelling now reached to the shoulder, the skin of the whole arm was discoloured, and presented a distended and somewhat shining appearance. Vesications had sprung up along the arm similar to those which had formed on the hand. Pulse 80; tongue slightly coated. The patient complained of no pain when the limb was at rest, but the slightest touch caused great distress, and the parts pitted upon pressure. The saline draughts were continued.

On the third day, the œdema had travelled down the side of the chest, as far as the upper part of the left hip the subcutaneous areolar tissue being swelled and feeling elastic to the touch. On the fourth day, the œdema began to subside, leaving the skin of a deep yellow colour, and irregularly mottled by ecchymosis, the depending parts being much darker than the regions above. The use of the draughts and liniment was persevered in.

On the sixth day, the ecchymosis underneath the arm had considerably increased, the extravasation of blood being now quite palpable; the swelling of the limb had, however, somewhat subsided, and the yellow tinge at the lower margin of the chest was gradually shading off. The patient's general health was in the mean time satisfactory, no more vesications had appeared, and the original ones were becoming of a deeper yellow, and dying away.

Eleven days after admission, the young man was made an out-patient, and progressed so well, that about twenty-five days after the accident, he was able to return to his work, though the arm, and especially the fingers, were somewhat stiff.

As this patient had immediately recourse to applications of great popular repute, it is difficult to speculate upon the case. That some alteration had taken place, either in the lymphatic or venous system on the left side of the trunk and on the affected arm, is made sufficiently plain by the swelling and ecchymosis; but it is not easy to determine what share the venom of the viper, the abdominal fat, or the adder oil had in the results. Without presuming to solve the problem, we would suggest that neither the fat nor oil has ever been proved to have any noxious properties, whereas the bite of the viper is well known to cause very severe local symptoms. We are the more inclined to look upon the peculiar poisonous fluid secreted in the buccal cavity of the animal as having solely caused the pathological phenomena detailed above, as severe pain was immediately felt in the very parts where the swelling and ecchymosis subsequently took place. Had, perhaps, the lad been of a less healthy constitution, it is likely that extravasation of blood would soon have been followed by abscess and all its consequences. We look upon the absence of suppuration as a mark of the sthenic character assumed by the affection.

ST. GEORGE'S HOSPITAL.

Apparently Idiopathic Tetanus; Death; Autopsy.

(Under the care of Dr. Nairne.)

Henry M ——, aged sixty-three, was admitted Jan. 10, 1851, under the care of Dr. Nairne. He was said by his friends to have been ailing some days previously, and that he had seemingly been attacked by a kind of slight fever. At nine o'clock in the morning, on the day of his admission, he had suddenly been seized with trismus, which very soon assumed the appearance of general tetanus He was brought to the hospital half an hour afterwards, when he was found to be in a state of universal spasm, with all the characters of opisthotonos.

Dr. Nairne ordered a turpentine injection to be thrown up immediately, and a draught was prescribed, containing half a drachm of turpentine, to be taken every four hours. The injection produced a copious evacuation from the bowels, and in administering it the attention of the nurse was drawn to a small ulcer under the right knee, which was afterwards stated to have been produced by applying something tightly round it for support, as the patient had been suffering from weakness in the joint. Very little of the turpentine draught could be swallowed, and the tetanic spasm continued unrelaxed, until the man sank into a comatose state, in which he died at two o'clock in the morning, the day after his admission.

The body was examined thirteen hours after death, and found well formed, and in good condition. There was a small ulcer, with livid margins and signs of inflammation, behind the right knee, a little below the flexure of the joint, and to the outer side The spinal cord appeared somewhat softer in consistency than usual, but there was no redness or other indication of disease about it. The brain was also a little softer than usual. One or two cysts were observable in the choroid plexus, but the organ was, in other respects, in a perfectly normal state. The chest and abdomen did not present any important deviation. It was noticed that the integuments and areolar tissue near the above-mentioned ulcer were hard and consolidated, and the perinæal nerve was found imbedded within them, just before turning round the fibula. There was no redness nor other mark of injury to this nerve, nor was it, apparently, compressed to any extent.

Encephaloid Disease of the lower portion of the Femur; Amputation; Recovery.

(Under the care of Mr. Henry Charles Johnson.)

John L———, aged twenty-three years, was admitted January 15th, 1851, under the care of Mr. Johnson. The patient presents a tumour which is very ill-defined, and situated in the right popliteal space, as well as at each side and in front of the lower extremity of the femur. The patella cannot be distinctly felt, being obscured by the general swelling at this part. The circumference of the tumour over the largest point (which is directly on its centre) is twenty-two inches, and over the situation of the patella twenty-one inches. The swelling is gradually lost above, on the front of the thigh, where great hardness can be felt; but there is no distinct line of demarcation between the diseased and healthy structures. The leg is very œdematous, and pits on pressure. An obscure sense of fluctuation is perceivable in the tumour itself, there is considerable tension of the skin, and slight tenderness when handled, but at other times a dull, aching pain is experienced. No pulsation can be detected in any part of the swelling.

The countenance of the patient is sallow and cachectic, with an anxious expression; he is very weak, and has a nervous and rather irritable manner. Tongue dry; pulse rapid. Soon after the commencement of the disease, leeches and blisters were employed, which gave no relief. About a fortnight before his entrance into the hospital, the tumour had been punctured with a grooved needle, and afterwards an incision made, when a small quantity of blood escaped. The patient gives a very imperfect account of the origin and progress of the swelling; he states, however, that it has existed sixteen weeks only, so that its growth would appear to have been very rapid.

On the 23d of January, Mr. Johnson removed the thigh just below the trochanter, by the flap operation, the patient being insensible with chloroform. Free bleeding occurred, though the femoral artery was steadily compressed by an assistant, and the vessels were rapidly tied.

On examining the amputated limb, it was found that the compact structure of the bone was exceedingly dense. The tumour presented a brain-like appearance; some of the cysts of which it was composed were of large size, and contained a considerable quantity of blood and serum. The tumour was situated between the ham-string muscles; it extended upwards as far as about the lower fourth of the thigh, and then seemed to cease *suddenly*, contrary to the appearance which obtained while it was connected with the rest of the limb. Below, the tumour reached to the inferior part of the popliteal space, and the cancelli of the lower expanded portion of the femur were soft, easily broken down, and filled with medullary matter. Where the bone becomes narrower, a very small spot of the malignant deposit was visible in the interior of the shaft, no larger than the surface of a split pea.

The progress of this patient created at one time considerable alarm; attacks of hæmorrhage occurred several times, which successively necessitated the application of ice, exposure to the air, and the use of the tourniquet. The young man was in the mean time becoming extremely weak, and no sign of union or healthy suppuration appeared in the stump, the discharge being of a thin and sanious character. Under these circumstances, Mr. Johnson had recourse to emollient and astringent applications, careful bandaging of the stump, support, and, above all, to large doses of chlorate of potash, in the following form:—Chlorate of potash, one scruple; spirit of chloric æther, fifteen minims; cinnamon water, one ounce: to be taken three times a day. The state of the patient continued very precarious for one month after the operation, when the stump began to heal kindly; all the ligatures were gradually removed, and the health improved considerably. Forty-eight days after the amputation the wound was quite cicatrized; the patient went into the country, and we are glad to say that he has been seen more than a twelvemonth after his discharge, when he was found to have grown stout, and there were no symptoms of a recurrence of the disease.

When encephaloid cancer attacks the upper part of the femur, and patients apply for relief when the affection has made considerable progress towards the ilium, there can be no doubt about the propriety of waiving any kind of operation, and resorting to palliative means only. There are at present, at the London and St. Bartholomew's Hospitals respectively, two victims of this dreadful disease, where the upper part of the femur and the pelvis present tumours of an encephaloid kind, about the size of three adult heads. We shall just give a few details of these cases, as affording useful facts bearing upon the history of the disease.

Supposed Spina Bifida in a Young Man; Enormous size of the Tumour; Puncture; Tetanus; Death; Autopsy.

(Under the care of Mr. Tatum.)

Among the deformities which arise from an imperfect junction of the two embryonic halves of the frame, there are some which are of a distressing and dangerous nature. Among these we would especially mention ectrophia of the bladder and spina bifida. We shall soon have to say a few words touching the first of these defects, and have this day to record a case of the second, which presents features of more than usual interest. In fact it is very rare to meet patients affected with spina bifida who have reached their twenty-first year, though here and there cases have been mentioned in which persons thus afflicted have lived far beyond twenty years. But these are unfortunately exceptions; the rule is that these subjects die young, and the mortality is so great that various kinds of operations have been devised to obliterate the cyst formed by the bulging theca vertebralis. Still, as patients affected with spina bifida do sometimes live many years, the safer course might perhaps be, that the minds of surgeons should be bent upon discovering the most acceptable and well contrived means of support, combined with gentle pressure, rather than to try to improve the operative measures calculated to obliterate the sac. Among the three successful cases of Sir. A. Cooper, two were treated by pressure. In this respect we would set M. Bourjeaurd's mind at work; he has already invented such cleverly contrived apparatuses for umbilical and other hernia, that, by going earnestly to work, he might offer the profession a system of elastic belts and air-pads which might prolong the existence of patients born with spina bifida to an indefinite extent. Mr. Tatum was kind enough to mention to us that he knew of two cases of grown-up persons, now alive and well, who were born with this malformation. These facts, with others that have been recorded, would tend to show that the palliative treatment is well worth consideration.

In the case which we are going to relate, no contrivance of any kind seems to have been used, and the tumour, though it several times spontaneously relieved itself, attained at last so enormous a size that surgical interference became indispensable. We shall see below that the operation was followed by tetanic symptoms; and this circumstance is certainly of great value, as bearing upon the obscure pathology of that affection.

L. M.——, aged twenty years, was admitted into Egremont ward, June 25, 1852, under the care of Mr. Tatum. The patient is of dark complexion, and was born at Aberystwith, in South Wales, with a tumour, about the size of a hen's egg, projecting from the upper part of the sacral region. This tumour gradually increased for seventeen years of the patient's life, when it spontaneously gave way, and a considerable quantity of fluid was discharged.—upon this attack the boy was obliged to keep his bed, but up to that period he had walked well. In about a week's time the tumour had regained its original size; no pain had been experienced for the three days during which the cyst was discharging, but the patient felt very giddy whilst it was refilling.

Five months before admission into St. George's Hospital the tumour again broke open; the same pathological phenomena noticed the first time, recurred, but the tumour became now very tender when touched, and the patient complained of a dragging sensation along the spine, extending to the head, together with a feeling of giddiness and mental confusion. resembling intoxication. He was, however, not visited by an inability to walk, and had control over the evacuation of urine and fæces, except when labouring under excitement.

On admission, a large tumour was found depending from the lumbar and sacral regions; the skin over it was rather red; it yielded a sensation of fluctuation, was somewhat tender to the touch, and about the size of two men's heads, with a comparatively small peduncle. It measured round the latter sixteen inches and a quarter; its greatest circumference was thirty-three inches, and twenty-seven inches across. No pain was felt in the tumour. The patient had *walked* to the hospital, and applied principally to get rid of the inconvenience created by the great size and weight of the tumour.

Five days after admission, Mr. Tatum punctured the cyst, and drew off a small quantity of fluid, just to relieve tension; but four days afterwards a fresh puncture was made, and five pints of serum were evacuated. When compression was then made on the tumour, the patient complained of headache. On the next day, the skin covering the cyst assumed a darker hue, and the young man began to be much distressed with headache and stiff-neck. In the space of two days, the sac had filled to such an extent, that it was larger than on admission; the patient suffered now from complete opisthotonos, and all the difficulty of swallowing caused by the violent incurvation backwards of the trachea and œsophagus: the teeth became covered with sordes and an erysipelatous redness spread over the tumour. Mr. Tatum had prescribed small doses of corrosive sublimate, to combat the inflammation of the spinal membranes, and opium was now added to the mercury. Port wine was freely given, but the symptoms became more and more urgent, and the patient died on the 9th of July, five days after the puncturing of the cyst.

On a post-mortem examination, (conducted by Mr. Holmes, surgical registrar to the hospital,) a state of parts different from what had been expected was discovered. The spinal column presented, in the lumbar or sacral regions, none of the deficiencies which might, from the nature of the case, have been looked for; the spinous processes were distinct, the laminæ entire, and no slit nor absence of bony structure was seen on the posterior aspect of the sacrum. The cyst was found of a very considerable size—large enough to lodge two fœtuses' heads; the walls were extremely thick, measuring, in some places, full half an inch; and the mucous membrane which lined its interior was covered with layers of lymph. In following up the cyst from periphery to peduncle, the latter was found to be attached to the margin of a small aperture in the lower portion of the sacrum, which opening was no other than the termination of the spinal canal in a patent state, and sufficiently large to admit the little finger. On opening the vertebral column, the membranes did not present any pathological alterations; but on slitting them open, pus was found bathing their internal surface up to the middle of the dorsal region. Above this point, the medulla spinalis and brain were in a perfectly sound state. The thoracic and abdominal cavities were likewise examined, but nothing worthy of remark was discovered.

How had the cyst here been formed? Probably by adhesions formed in fœtal life between the membranes of the cord and the termination of the sacral canal, combined with an absence or weakness of the posterior sacro-coccygeal ligament, which, in the normal state, closes that aperture, and completes the canal. In this supposition we are supported by Cruveilhier, who says, in his work on Anatomy, (Twedie's translation,) "In the body of an infant at the full time, which was affected with spina bifida in the sacral region, and died a short time after birth, the spinal marrow descended as low as the sacrum, and there was no cauda equina. Malcarne had already observed a similar fact. This peculiarity depends not upon an arrest of development in the cord, but upon adhesions contracted by it at an early period of fœtal life."

Cysts formed of a prolongation of dura mater through an aperture at the termination of the sacrum, are certainly of rare occurrence, and it may be questioned whether a case of this sort should be called spina *bifida:* but Samuel Cooper mentions an example of such a pathological state, in his Dictionary, p. 1173; the case having been published by Mr. Dawson in the *Provincial Transactions*. "A lady, thirty-eight years of age, presented a tumour at the upper and back part of the thigh, which was not suspected to be connected with the spine. When an operation for the removal of it was about to be performed, a puncture was made in the thinnest part of the skin covering its apex, and twelve ounces of clear fluid were discharged, leaving the sac collapsed. The latter was found to have a narrow neck, passing to the lower part of the sacrum, in which there was an aperture capable of admitting the little finger."

We would finally allude, for a moment, to the tetanic symptoms which followed upon the second puncturing of the cyst. This result is, as far as we know, rather an unusual one; and as pus was found in the spinal canal on a post-mortem examination, it might be surmised, without much straining, that although pus is so seldom secreted within the canal after idiopathic or traumatic tetanus, inflammation of the meninges is connected with tetanus more frequently than is generally allowed. In Mr. Tatum's case, opisthotonos was strongly marked, but there was neither trismus nor spasm of the muscles of deglutition; so that the analogy we are striving to establish is perhaps not quite complete. It remains, nevertheless, a fact that strongly-marked opisthotonos was here connected with the puncture of the cyst, and with the secretion of pus within the spinal column.

Encephaloid Disease of the Testicle presenting an Enchondromatous Induration.

(Under the care of Mr. Henry Charles Johnson.)

The last case of encephaloid cancer of the testicle, to which we have now to draw attention, is peculiar, inasmuch as it shows what changes may, with time, take place in an originally encephaloid growth; attention to this case will probably present errors of diagnosis, which, in analogous instances, might easily be made.

The patient is a man about thirty years of age, who was admitted under the care of Mr. Johnson, in Feb. 1852. He presented a considerable enlargement of the left testicle, which had begun to appear about fifteen months before admission; the organ had now reached the size of a large turkey's egg, but no pain had ever been felt in it. The man applied to Mr. Johnson principally to be relieved from the inconvenience of the weight and size of the enlarged testicle. A puncture made into the swelling was followed by no discharge of fluid; and though it was thought that the disease was of a malignant kind, the patient was recommended a course of mercury, which might be of benefit if the affection happened to be tubercular. The mercurial treatment had, however, no influence on the disease, and Mr. Johnson resolved to remove the encephaloid mass.

The operation was accordingly performed on the 26th of Feb., 1852, in the usual way, the patient being insensible with chloroform. On a section, the disease proved to be of the nature which had been diagnosed—viz., encephaloid,—but the mass had, almost in its whole periphery, become so hard that its characters merged upon those of enchondroma; and Mr. Johnson observed very justly that had the exploring needle been thrust in at those particular spots, a wrong diagnosis might have been arrived at. In front of the removed organ, the tunica vaginalis was found somewhat distended with fluid.

Mr. Johnson stated that he considered cases of this kind extremely unfavourable, as the lymphatic glands within the abdomen are very apt to enlarge and prove destructive to the patient. (Mr. Green's case—see above—affords a very striking instance of this complication.) He was bound to say, however, that the fatal termination from the internal secondary tumours is of a less distressing kind than death resulting from ulceration of the external encephaloid mass, and the subsequent exhaustion. He would not omit to mention that Mr. Cæsar Hawkins had operated, some eight or ten years ago, upon a patient affected with encephaloid disease of the testicle, the preparation being now in the museum, and that no cancerous manifestations had since appeared. This fact we think of great importance to record, as no doubt can exist touching the correctness of the diagnosis, since the preparation can always be examined, and the matter be verified. This circumstance reminds us of an inquiry which it would be of some use for microscopists to institute—viz., whether a slice of a preparation many years in spirit, presents the same or pretty similar characters under the microscope, as in the fresh state; and whether any dilute acid, or other fluid, is or is not capable of recalling the original appearances.

The series of facts adduced above, and which all bear upon encephaloid cancer of bone and testicle, are pretty confirmatory of the opinions generally current in the profession on the subject. We see—1. That there is almost always an exciting cause. 2. That the disease, in the incipient stage, is frequently mistaken for rheumatism. 3. That young people are very obnoxious to encephaloid cancer, as regards the affection of the bones; the testicle being generally attacked at mature age. 4. That the progress of the disease is, in general, rapid. 5. That bone is, perhaps, more often attacked than other structures. 6. That early operations afford some chance of relief for an indefinite period, (see St. George's Hospital,) but that it is very difficult to ascertain to what extent the shaft of the bone is affected. (See St. Bartholomew's Hospital, Mr. Skey's case.) 7. That when the disease begins about the pelvis, or high up on the femur, no operative measures can be resorted to. 8. That phthisis and encephaloid cancer may exist contemporaneously in the same subject. 9. That the testicle and lumbar glands may be simultaneously affected, and to the same extent. (See St. Thomas's Hospital, Mr. Green's case.)

GUY'S HOSPITAL.

Encephaloid Disease of the Lower Portion of the Femur: Amputation high up: New Tourniquet: Recovery.

(Under the care of Mr. Hilton.)

It is unfortunately but too true that cases of encephaloid cancer come very frequently before the profession; and as a large proportion of patients thus affected are sent to the hospitals of this metropolis, it will be readily understood that many cases of this disease come under our cognizance. Now, we have thought, whilst observing the pathological phenomena presented by these patients, that it would perhaps answer a useful end to collect some of the most striking cases from all the hospitals which, by the courteous sanction of the officers, we regularly visit, and present a sort of synoptical sketch of their principal features. Every one will allow that facts are extremely valuable in the study of disease, even where our notions are tolerably correct and complete; so that facts must, *à fortiori*, become of still greater importance when bearing upon the ætiology of an affection which is surrounded by great obscurity. Encephaloid cancer falls under this head, not only as to its ætiology, but also as to the ultimate results of operations for the removal of the disease; and we have therefore no doubt but our readers will gladly give a few minutes to the perusal of the data which we have collected from six of our metropolitan hospitals.

Sarah W——, aged fifteen, residing at Gravesend, was admitted into Dorcas ward, December 31, 1851, under the care of Mr. Hilton. She is a delicate-looking-girl, with a fine clear skin and very intelligent aspect; there is no trace of cancerous disease in the family, but the patient suffered, eight years ago, an attack of continued fever, and has since then been troubled with cough. (We hold it of paramount importance to take into account the various febrile affections which a patient may have suffered in childhood; for it may eventually be proved that their influence upon the constitution is perhaps greater and more lasting than has hitherto been supposed.) Three months before admission, the patient felt occasionally shooting pains, most troublesome at night. around the right knee joint; no injury had been sustained, and she underwent, for some time, under the care of various practitioners, the treatment usual in such incipient cases—vis., blisters, lotions, &c. A small, defined, smooth swelling soon appeared on the outer side of the knee; it was firm, but not hard, and the skin over it remained unchanged in colour. Under various applications the swelling subsided on the external portion of the joint, but a similar tumour then appeared on the inner side. She soon was unable to walk; the whole knee swelled; and the lancinating and throbbing pain became very urgent. Apparent fluctuation now induced Dr. Armstrong, of Gravesend, to introduce an exploring needle, both on the inner and outer aspect of the joint, and also above the patella. About one ounce of blood escaped, and on the next morning a malignant-looking mass protruded through the opening above the patella; and the tumour, as well as the fungus, went on increasing, up to her admission.

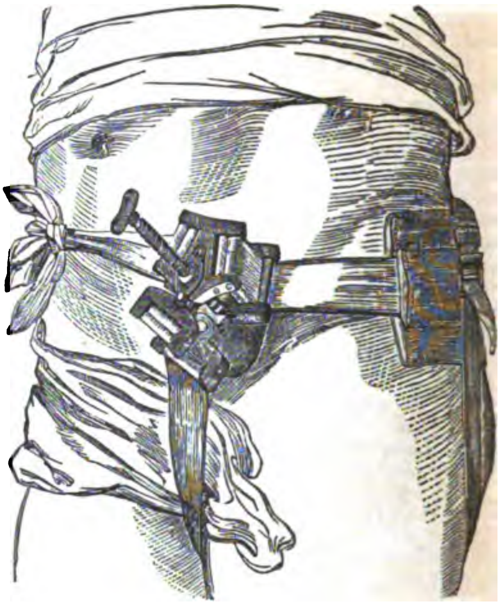
The aspect of the parts, on a first inspection, is thus described:—The whole of the upper part of the right knee is very much increased in size as compared with the left side; tortuous veins are coursing under the smooth and shining integuments, and pretty deep furrows pervade the swelling. The latter has an elastic feel to the touch, and is so exquisitely painful that the slightest pressure causes the patient to cry with agony. The pain extends along the femur and tibia, and continues at night without direct pressure; there is œdema of the leg, and much constitutional distress.

Mr. Hilton, having no doubt as to the malignant character of the disease, determined to amputate above the knee without delay; but the patient was so weak that he apprehended the effects of the hæmorrhage which might be expected. Mr. Hilton therefore employed a tourniquet, which he had had some time before constructed, which could be so adapted as to make pressure on the femoral artery as it is passing under Poupart's ligament.

The patient having been put under the influence of chloroform, the limb was removed a little above the junction of the upper and middle third of the thigh by the lateral flap operation.

On looking at the flaps, no trace of diseased structure could be observed; the posterior one was somewhat œdematous, but the surface of the divided bone remarkably healthy, and the glands in the groin free from disease. Not more than about two ounces of blood were lost, a result mainly owing to the rapidity with which the operation was performed, and to the use of the new tourniquet. Mr. Hilton saw the patient about an hour after she had been removed to bed, and ordered her some brandy, and twenty minims of laudanum, to counteract faintness and nausea.

On making a longitudinal section of the amputated limb, some serous and synovial fluid escaped through the joint; the encephaloid disease appeared to have commenced in the interior of the shaft of the femur. immediately above its junction with the condyles, and to have radiated from that point, implicating and displacing the surrounding structures. No distinct or separate fungoid tubercles could be detected in any of the surrounding textures, but the whole mass appeared to be continuous with the original seat of the disease in the femur. The morbid growth had not extended to the interior of the knee-joint, nor had it involved the epiphyses of the femur; but it had passed up the medullary canal of the bone, so as to reach the lower part of the middle third of the femur, encroaching much higher internally than externally. The inner portion of the cylinder of the shaft was not destroyed beyond the inferior part of the lower third, although its outer half was overlapped by the fungoid mass, which had broken through the continuity of the bone a little above the epiphysis, spreading beneath the periosteum, and separating it from the bone. This circumstance probably explains the extreme pain which the patient suffered, from the tension of the periosteum. The fungus, which had protruded through one of the punctured openings in the skin, was found to be a prolongation of a large mass of fungoid growth, which had perforated the periosteum, and thence had grown through the track made by the lancet before the patient's admission into hospital. The periosteum, at the posterior part of the femur, although much distended, and pressed towards the popliteal space, had not given way.



The tourniquet is furnished with three sets of rollers, instead of two, as in the ordinary Petit's tourniquet. The arms of the lower platform are somewhat curved upwards, so as to prevent pressure on the abdomen, on the one side, and the thigh on the other. In both upper and lower platforms, the arms of two of the sets are fixed, and so directed upwards and backwards, that the tapes easily embrace and hold on the pelvis. The third set of arms are horizontally moveable, so that the tape connected with them can be adjusted under the thigh, on the right or left side as the occasion may require, brought up under the glutæal region, and buckled to the pelvis-strap at the most convenient spot. The pad on which the tourniquet rests is to be placed on the artery, as it passes over the ramus of the os pubis; and the instrument can be tightened in the ordinary way, until twenty-seven inches of the tape are taken up; so that any necessary amount of pressure can be made on the vessel. This instrument, together with the drawings, models, and patterns, was made, under Mr. Hilton's suggestion and direction, at Mr Biggs's establishment, St. Thomas's-street, Borough.

For one month after the operation the patient progressed very favourably by means of careful nursing, unremitted attention, and the cautious exhibition of tonics and stimulants. After this period, Mr. Hilton, considering that country air would be very beneficial, and might ensure the completion of the recovery, sent the patient to her native place, quite free from indications of local or constitutional disease. We have since been informed, that up to the end of June, 1852, being six months after the operation, the patient was in excellent health, without any sign of a relapse.

Cases of Amputation at the Shoulder-joint.

(Under the care of Mr. Cock and Mr. Poland.)

It must be allowed that the capital operations of surgery have, since the introduction of anæsthetic agents, lost a great deal of their formidable character; for, if we mistake not, the shock of these operations had a large share in the occasional fatal results by which they were followed. This cause of failure is now removed, and the principal accidents we have to guard against are hæmorrhage, profuse suppuration, formation of abscess, and necrosis of bone. From the cases which have been recorded, and from those which we so frequently see in the hospitals of London, we might perhaps infer that these untoward circumstances are, in tolerably healthy subjects, of rare occurrence; and we suspect that the careful and judicious dressing, the generous diet, and good ventilation of wards, have no small share in these favourable results.

With these facts before us, it is natural that we should inquire whether amputation at the hip-joint will ever be performed with as many chances of success as is now done for the shoulder. Perhaps it will; at least we do not see why the contrary should be the case. No one will, of course, deny that the surfaces acted upon are far more extensive in the latter than in the former instance; but as the risks of the shock are now removed, it is plain that the two operations are on the same footing in this respect. The external iliac artery is not more liable to secondary hæmorrhage than the subclavian, and the cotyloid cavity not more obnoxious to necrosis than the glenoid; so that the two pathological manifestations which would really create hazard at the hip, as compared with the shoulder, are, formation of abscesses and profuse suppuration. But careful dressing and attention to diet and ventilation would certainly exert as beneficial an influence in hip cases as when the amputation takes place at the shoulder; and thus one might almost venture to predict that operations at the coxo-femoral articulation will in future days be more readily performed than hitherto. There is, however, one circumstance which will ever render both amputations (and in fact the removal of a great portion of a limb wherever it is taken off,) somewhat dangerous—viz., the congestion of internal organs consequent upon the removal of a large portion of the frame. That pneumonia, apoplexy, &c. &c., do not more frequently follow such operations, is probably owing to the loss of blood inseparable from the ablation of limbs; but there is sometimes so little lost, that the absence of congestive symptoms must be partially referred to the drain occasioned by the secretion of pus. At all events, it is plain that the hæmorrhage which accompanies amputation, and the suppuration attending upon the healing of the stump, need not be looked upon with apprehension, except the patient be very weak and exhausted by previous disease.

We must in some degree apologize for alluding too largely to amputation at the hip-joint; but in reviewing the cases of encephaloid cancer of the upper part of the femur, which have hitherto been reported under their varied circumstances, we could not help noticing that removal of the limb at the hip-joint might have afforded a shade more hope as to the non-recurrence of the affection. Regarding the shoulder, surgeons now do not hesitate one moment when disease or accident imperatively call for the operation. We merely wish, therefore, in mentioning the following cases, to adduce facts which are likely to strengthen principles of practice already pretty firmly established. The first case was treated by Mr. Cock, and from Mr. Pininger's notes we gather the following particulars:—

H. S.———, aged 30, a leather-dresser, was admitted July 12, 1851, into Luke ward, under the care of Mr. Cock, in consequence of a severe gunshot wound of his right arm. The patient states that on the morning of the accident he was shooting rooks, when, having occasion to get over some railings, he placed his gun (which was loaded, but not cocked) on the inner side of, and leaning against, the railing. When he had climbed over the latter, he drew the gun through it by the muzzle, and the trigger, being directed downwards, came to be partially raised by being pulled against a bar. The gun unfortunately went off, and its contents (common shot) passed through the man's right arm, close to the shoulder.

Upon examination, the humerus was found completely shattered, from about half an inch below its head to four inches down the shaft; there was extensive laceration of the soft parts around the limb, but the axillary artery and plexus appeared to have escaped injury. The men who brought the patient to the hospital said that he had lost much blood; and as the hæmorrhage was still going on, Mr. Cock amputated at once at the scapular articulation, though the man was still in a state of collapse. The operation was speedily completed, the patient being, in the mean time, kept up by the administration of brandy. The greater part of the deltoid muscle had been destroyed, but a tolerable, although somewhat scanty, flap was obtained from each side. The margins of the wound were brought together in the usual manner after the vessels were secured; and when reaction had set in, half a drachm of laudanum was given to the patient.

The progress of the case was marked by two principal features—cough and the formation of abscesses: of the latter, some formed about the latissimus dorsi, others in the axilla, and one even about the crest of the ilium; but by good diet, tonics, the successive opening of the purulent sacs, and careful dressing, the patient left the hospital with a good cicatrix, about three months after the operation.

Severe injury to the upper part of the Arm by Machinery. Amputation at the Shoulder-joint.

(Under the care of Mr. Poland.)

The following particulars were noted by Mr. Morris:—

George C——, aged seventeen, a healthy lad, of regular habits, and employed for some years in a paper factory, was admitted October 4, 1851. It appears that whilst the boy was pursuing his occupation at the mill, on the day of admission, his left hand and arm were caught in the machine, whereupon the wheel completely crushed the arm in its upper third, tearing the integuments and muscles for some way above that region. There was little or no hæmorrhage at the time, and, after a temporary dressing, he was sent to Guy's Hospital, where he arrived about three hours after the accident.

On admission, the boy had somewhat rallied from the shock; the arm was unbound, and the following condition observed:—The whole of the left upper extremity was irregularly torn off about the insertion of the deltoid; the bone was obliquely and jaggedly broken, the integuments on the inner side hanging in long shreds, with the brachial vessels and nerves exposed to the extent of an inch. On the outer side the integuments and muscles were lacerated and torn off much higher up. Immediate amputation was evidently unavoidable; and it was determined to remove the remaining portion of the limb at the shoulder-joint, as there was not sufficient soft parts to form a covering to the bone if an endeavour were made to save any part of the head of the humerus. Mr. Bransby Cooper entirely coincided with this view, and took charge of the subclavian artery during the operation.

As much outer flap as could be made was taken from the deltoid; but there was only sufficient to form one-third of the stump; consequently the inner flap had to be made from the soft parts of the arm, including the brachial vessels and nerves. After the ligatures were applied to the vessels the patient was put to bed, scarcely any loss of blood having taken place. About three hours afterwards the flaps were brought evenly together and maintained by eight sutures, with suitable support by means of well-adjusted strips of plaster. The patient was ordered eight ounces of wine, one pint of porter, and a chop, daily.

The case progressed favourably, without a bad symptom; the stump was dressed about every fourth day, and great care taken that no collection of pus should be formed The sutures were removed on the sixth day, and the ligatures came away on the third week: the stump healing, partly by granulation, and partly by first intention, in the space of one month.

At the end of the fourth week the boy's appetite began to fail, he had chilling sensations, and looked pale. As there were two cases in the ward dying of phlebitis, it was feared that the patient might become the subject of this fearful affection; he was therefore immediately despatched into the country, where he soon regained his failing appetite, and became stout and hearty. He presented himself at the hospital two weeks afterwards, in perfect health, and the stump nearly cicatrized.

The next case, treated by Mr. Coulson, will afford an interesting illustration of the dependence of success on the state of health previous to the accident, as also on the age of the patient. It will likewise be seen in Mr. Coulson's case, (as was observed in the two preceding ones,) that, after accidents about the shoulder, the surgeon must take his flaps, not according to methodical directions, but do the best he can to form a satisfactory stump from parts often sadly lacerated.

Encephaloid Disease of the Clavicle and Scapula.

(Under the care of Mr. Bransby Cooper.)

From the consideration of encephaloid cancer, as affecting the upper portion of the humerus, we may, without sudden transition, pass to a most affecting case, where the same disease sprang up in the clavicle, and is perhaps extensively connected with the scapula. Though we are accustomed to see medullary cancer attacking the young, (even children two years old have been operated on at Paris, said to be labouring under the disease,) it is distressing to see patients of almost tender years stricken down by this complaint, the more so when the cancerous mass has fungated, and presents a huge, ulcerated, sanguineous tumour, discharging foul, sanious, and fœtid matter. The following case affords a painful example of this chain of distressing circumstances, and will show how regularly and steadily these cancerous growths will recur when the surgeon's knife has been busy in excising them:—

Eliza M—— was admitted into Dorcas Ward in October, 1851, under the care of Mr. Cooper. The patient is only fifteen years of age, of dark complexion and very regular features; her mother has for many years been suffering from a spinal complaint. (cancer sometimes affects the spine,) and the grandmother died of cancer of the uterus. On admission, the girl presented, over the acromial portion of the right clavicle, a tumour about the size of a small apple, which had been growing for several months, and was occasionally giving her considerable pain. This swelling felt resisting, though somewhat elastic, and Mr. Cooper removed it a short time after the patient's admission.

The patient progressed very favourably, and left the hospital on December 2nd, 1851, the wound being almost healed. Seventeen days after her discharge, (December 19, 1851,) the girl applied again for admission, as the tumour had recurred on the same spot, presenting now a larger size than originally. It became at this time clear that the clavicle was involved in the disease; and Mr. Cooper proceeded to remove both the tumour itself and the acromial half of the above-named bone. This operation, which we need hardly say is of a very delicate character, was performed without much loss of blood, and the patient did pretty well for a little while afterwards.

But the wound never showed an inclination to close; it soon assumed a carcinomatous character, began to fungate, and has increased for the last six months to such a degree as to be at the present time about the size of a fœtus's head The mass is of a dark colour, nodulated, and almost spherical; the surface is ulcerated, and discharging much sanious and fœtid pus, and offers altogether a very distressing aspect. It is supposed, from the extensive area over which the disease has spread, that the scapula must be largely involved.

It may easily be imagined that the patient's health has materially suffered during the progress of the cancerous tumour; at this present moment (July 21, 1852,) she is in a very precarious state. and is likely to sink very soon under the effects of this fearful malady.

At the moment of going to press, we learn that this patient died on the 25th of July. The body was examined on the 26th, but no cancerous growth was found in the internal organs, excepting a small suspicious tumour in the posterior mediastinum.

While watching patients affected in the same manner as this poor girl, it has often struck us that the extremely foul emanations from a fungating encephaloid cancer must be of very great detriment to the sick lying in the same ward. It would certainly be a great improvement were all the subjects thus affected placed in a separate chamber, the latter being provided with a powerful ventilating apparatus. We should not omit to say that we lately saw, at the London Hospital, a patient of Mr. Ward, placed in one of these isolated rooms, which is provided with a large tube and mill for ventilation. The patient had first suffered from cancer of the lip; the ulcerated tumour had been removed, as was also, a little time afterwards, a cancerous gland under the jaw, in which the disease had recurred. The wound for the second operation had never healed, and a few months afterwards the whole of the left side of the submaxillary region was one mass of ulcerating cancer. The fœtidity, as may easily be fancied, is very considerable; but as the patient is by himself, and the room well ventilated, no mischief is likely to occur.

CHARING-CROSS HOSPITAL.

Hysterical Paralysis.

(Under the care of Dr. Chowne.)

We reported some time ago, a case of hysterical contraction of the knee-joint, treated by Dr. Chowne, and we then stated, that within a few beds there was another patient who pretended that she could not speak. This latter case presents very extraordinary features; we offer, therefore, no apology for relating it at full length, and have much pleasure in interspersing it with the remarks which Dr. Chowne made now and then on this strange instance of hysterical malingering.

The patient is a woman of middle stature, aged thirty-six, light-brown hair, delicate constitution, and had been a domestic servant. She was admitted into the Charing-cross Hospital, under the care of Dr. Chowne, on the 22nd of October, 1851, labouring under paralysis of the left arm and leg, rigidly fixed lower jaw, and loss of speech.

Her modes of communication were, by writing on paper or a slate, or by means of an alphabet of letters pasted into a book, in which she pointed to letter after letter, until the words she wished to use were made out. In some instances she could designate whole words—as, for example, on being asked successively whether her tongue adhered to the lower or upper teeth, or to what part, she signified negatives by shaking the head, and replied by pointing to the word "roof" in her Bible.

The patient had, for the last eleven years, suffered different attacks of paralysis, contraction of limbs, difficulty of walking, and pain in the head, for which she underwent the routine treatment of blisters, issues, baths, &c. She now and then was enabled to return to service; when in April, 1850, she was taken ill at ten o'clock at night. There was no pain, but she felt as though she were falling from a height; her hands were clasped; her teeth became closed, as they are now, and she felt a very heavy pressure from the upper on the lower jaw. By two o'clock in the morning she was quite unconscious, and remained so for a month. When consciousness returned, she felt a very severe pain in her head, was blind, deaf of both ears, and her mouth and tongue became fixed as at present. She could move neither hand nor foot on either side. After partially recovering from this attack, she had two others of the same kind, until she was finally admitted, under the care of Dr. Chowne, as stated above. The extraordinary statements made by this patient induced Dr. Chowne to investigate her case minutely, the data being the following:—

1. She states that her "jaws are locked," and that she cannot separate the upper from the lower.

2. That the anterior part of her tongue is fixed to the roof of her mouth, and immovable.

3. That although she cannot move the anterior part of her tongue, she can move the posterior part of it; that she can make vocal sounds, and could even talk if her tongue were not so fixed.

4. That her mode of taking liquids is by drawing them in between her teeth, which is the less difficult as her upper teeth project further forward than the lower.

5. That her mode of taking sopped food is by pressing it with her finger between her upper and lower teeth.

6. That her way of ingesting solid food is by grating or grinding it with her finger against her upper teeth, until it is sufficiently small to pass between them and the lower teeth.

7. She has also said she can only suck the goodness out of meat, but that she can take the whole of fish and of fat bacon.

8. That she can swallow without difficulty, and that her throat feels large.

9. That her left arm and leg are perfectly paralysed.

Dr. Chowne now observed, that the circumstances which may rigidly fix the lower jaw, are:—

1st. Morbid condition of the ligaments.

2nd. Anchylosis.

3rd. Continued spasm or tension of certain muscles.

1, 2. The sudden manner in which the attack came on makes it unnecessary to enter into considerations of whether it is caused either by diseased ligaments or by anchylosis.

3. With regard to muscular rigidity: the muscles which would tend to raise and close the jaw, are the temporales, the masseters, and, in a slight degree, the pterygoidei interni.

The muscles which would have the greatest influence in drawing down the jaw, are the digastricus and (assuming the os hyoides to be fixed) the geniohyoidei, and the mylohyodei: these last muscles, however, having but little power, would not be capable of counteracting, even moderately, rigid contraction of the others named.

Now, considering these facts, Dr. Chowne proceeded to examine the patient as follows:—

Upon placing the fingers on the temporal muscle, while the lower jaw is not interfered with, the muscular fibres give no sign of fulness, thickening, or action; but upon an attempt being made to press the chin downwards, the muscle is perceived to contract and swell.

On placing the finger within the cheek, against the anterior margin of the masseter muscles, also without interfering with the lower jaw, that muscle is perceived not to be more than ordinarily tense; but upon attempting to press the chin downwards, while the finger is still on the margin of the muscle, a contraction and tension are, in like manner, produced.

The pterygoidei interni, and the other muscles capable of drawing up the lower jaw, could not, of course, be subjected to a similar test.

With regard to the fixed state of the temporales and masseter muscles, which *should* exist, were *they* the cause of the closed jaws, there is no discoverable nervous affection of the head or face to indicate that the nerves which supply the muscles are in a morbid state.

Dr. Chowne now turned his attention to the fixed state of the tongue, and found that in all probability no defect existed in the nerves by which it is supplied. The glosso-pharyngeal nerve, which is distributed to the tongue as well as to the tonsils and the muscles of the pharynx, appears to be healthy, for the patient can perform the act of deglutition without difficulty. The anterior part of the tongue, moreover, is supplied by the same nerve as the posterior part, and the act of deglutition, in which the tongue takes a large share, being performed normally and readily, the presumption would be, that the anterior part of the tongue is also in a healthy state.

Amongst the other facts apparently at variance with the statements of the patient, is one which applies to the very first needful process, after the food has passed between the teeth into the mouth. Assuming that the anterior part of the tongue is really immovably fixed to the roof, as the woman states, the food *must* arrive in the mouth UNDER the tongue. When it is recollected that, on the one hand, that organ is by the patient said to be immovable, except at its posterior parts, and that, on the other hand, the teeth being clenched, the cheeks are entirely prevented from operating upon anything within the cavity of the mouth, we perceive that there are not any forces at liberty capable of lifting a morsel placed *under* the tongue, out of that place, and of conveying it up, round and over the edges of the tongue to its upper surface.

In the swallowing of liquids, the difficulty might, perhaps, be overcome, by retaining a portion of air in the mouth at the time, which, being compressed by the cheeks, drives the fluid to the upper parts of the mouth. With regard to these two points, as some deception was suspected, especial watching was instituted, and it was perceived that the grating or grinding of fish, &c., and passing it in between the teeth, and swallowing it, were accomplished in a shorter time, and with less difficulty, than were compatible with the abnormal state ascribed to the jaw and the tongue. The swallowing of sopped food was performed without any delay or forcing out of the cheeks as if by air, and without any visible effort, more than belongs to healthy deglutition. Another point not to be over-looked is, that in the process of passing her food between her teeth into the mouth, some necessarily falls down between the cheek and the gums of the lower jaw; yet no accumulation takes place in this part, as we might expect would happen, the teeth being closed and the tongue confined within them. Such accumulations are, we know, a very troublesome consequence of paralysis of the portio dura, in which disease, even with full power over the tongue, the patient, not having the help of the muscles of the cheek, is obliged to pass (as a substitute for the tongue) a finger between the cheek and the lower gum of the affected side, to remove the accumulations. In the present patient's case, the closure of the teeth must be looked upon as equivalent to paralysis of the cheek, as far as removing collections from these parts into the cavity of the mouth is concerned. It is true that these particles may, by a little management, be mixed up with fluids taken into the mouth, and then swallowed; but that must be by an obvious process and exertion which would not have escaped notice.

In order to ascertain whether the submaxillary bone and the tongue would be liberated, or whether any differences would be perceived, while the patient was under the influence of chloroform, a trial was made.

On November 11th, 1851, chloroform was administered by Dr. Snow, Dr. Chowne and Mr. Alfred Harvey being present. The patient on first becoming unconscious breathed in a sobbing and hysterical manner. The chloroform was given very gradually, and as she became more affected by it there was some rigidity and struggling: the right arm and leg (the limbs said to be not affected) moved about a good deal; the left arm and leg, (the limbs said to be completely paralysed) were also distinctly moved, but not more than a tenth part as much as those of the opposite side. The movements, however, were made with sufficient force to offer considerable resistance against a hand placed to oppose them. A doubt might then still exist, that the limbs of the opposite sides were in very different states or conditions as to their susceptibility to the excito-motory influences and motory powers, whatever the explanation might be.*

While the patient was quite insensible, the pupils turned upwards; and no contraction of the orbicularis palpebrarum being caused by touching the conjunctiva at the edge of the eyelid, attention was directed to the jaw, which was still firmly closed; but it could be opened by using a moderate degree of force with the fingers, to the extent of about an inch.

The effect of the chloroform having been in great measure allowed to subside, it was again administered, when the movements of the limbs recurred, with the same difference between the motion of the right and left side as had taken place just before. The mouth was again opened, and the cork of a wine-bottle placed between the teeth, in the direction of its long axis corresponding with that of the tongue. It required some little pressure to introduce it, and being wedged in, it appeared to be firmly held. While the cork was in this situation, the tongue was particularly noticed, and it was seen to move freely, not only within the mouth, but the point passed out by the side of the cork, and beyond the front teeth. The movements were observed by Dr. Snow and Mr. A. Harvey, as well as by Dr. Chowne. Presuming that the cork would be held in its place by the pressure of the teeth, the attention was withdrawn from it for a few seconds, but in the interim it passed out, and the jaws again closed. The moment at which the cork was removed having escaped notice, so also, of course, did the means by which it was set at liberty. The fact however, of its having been thus removed, makes it appear certain (for her hand was not applied to it) that it either *fell* out, or was pushed outwards.

There is no reason to believe, that during the whole of these examinations the patient was fully under the influence of chloroform. The muscular power exercised by the affected limbs, while the patient was under the influence, was great; and when this exercise of muscular force is contrasted with the seemingly absolute powerlessness under which the limbs were represented as labouring, it either implies that the evidence of genuine paralysis is incomplete, or that chloroform has power over paralytic muscles, and is capable of recalling, for the time being, their wonted function.

The facts of the tongue being moveable while the patient was under the influence of chloroform, and not moveable at other times, appear to be contradictory and incompatible with each other; and whatever explanation might seem affirmative of the reality of the one, would seem negative as to the reality of the other.

Any explanation of the means by which the cork was removed appears to be also embarrassed by contradictions. There do not appear to be any other means than, on the one hand, relaxation and partial opening of the mouth, so as to let it fall out, which is opposed to the supposition that the jaws are involuntarily and ungovernably drawn together; or, on the other hand, an active and strong use of the tongue against the cork, to *push* it out from between the clenched teeth, which is opposed to the supposition that the tongue is adherent to the roof of the mouth.

Galvanism was applied, with reference to the irritability of the used and unused limbs. Several trials were made, and the limbs appeared, when under pretty strong, or only moderately strong shocks, to be, in the main, equally affected.

In accordance with the opinion that, when galvanism or electricity is applied to limbs supposed to be paralysed, as a diagnostic agent, the current should not be so strong as to give pain, it was administered in very slight force; but it must be remembered, that when so administered, voluntary efforts might interfere, to make the effects on a sound limb and a doubtful limb appear to be equal; and nothing conclusive could be inferred from the operation.

Upon measuring the circumference of the two arms, at the situation of the belly of the biceps, the sound arm was larger by about half an inch; and about two inches below the elbow, the sound forearm was also slightly the largest. The healthy leg, measured round the calf, was very slightly larger than the other. The temperature of the two, tried by an instrument invented by Dr. Spurgin, called by him thermoscope, was equal. She could feel quite well and properly any touch upon the surface of either the leg, the arm, the hand, or the foot, except that tickling the sole of the foot was not perceived, and had no effect. Upon being pricked, either on the leg or arm, with a pin or needle, she did not perceive it.

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* The movements of the defective limbs were, except in strength, exactly like those of the sound limbs—that is to say, not jerking or spasmodic.

When this patient was admitted into the hospital, she was (in consequence of her statement that she could not take solid food) put upon liquid diet, eggs, &c. &c. Her looks, however, produced some surprise in Dr. Chowne, as there was not such an appearance of the face and limbs, nor such an expression of countenance, as would indicate long abstinence from solid food. After she had been a short time upon this diet, her looks fell off, without anything in her health to account for it; and Dr. Chowne ordered that she should have the gravy of meat, and, if she could take it, meat scraped fine. She, however, wrote on a slate that she could suck the gravy out of meat, and directions were given that she should have some slices for that purpose. These she was able to consume entirely, as already described, by grinding or grating the meat against her upper teeth, thus availing herself of the solid as well as the juicy parts. She succeeded so well with this plan, that full meat diet daily (or fish when she preferred it) was ordered for her, and it was ascertained that her daily portion was taken. Under the use of this better diet her appearance improved. Her health has been, since she has been in the hospital, pretty good, and has not at any time been a cause of anxiety, except that once she has had an attack of what appeared to be hysterical coma. She appeared to be for several hours insensible, but gradually recovered, and returned to her former state. She has a fair quantity of flesh, and tolerably good colour; the skin is healthy; the pulse steady, and moderately strong; she takes sufficient food; sleeps pretty well, and the ordinary functions, catemenia included, proceed naturally. Her intellects are clear; her perception quick; vision correct; eyes and pupils natural; and her hearing good, without pain or disease in either ear. The muscles of her lips and cheeks are perfectly free and moveable. Local applications, as stimulants to the limbs, and relaxing applications to the jaw, or rather to the muscles of the temples and cheek, were prescribed, and administered by Mr. Dalton, the house-surgeon, in order that their effects might be accurately noticed; but without producing any good effect. Atropine was applied as an anodyne, and dolichos pruriens to the cheeks as a counter-irritant.

Dr. Chowne having explained to her, as well as to some of her friends, after she had been several months in the hospital, that the symptoms she described contradicted each other in some respects, she referred him to certain passages in Scripture, (stating at the same time in writing, that her complaint was like that;) she pointed to the 26th verse of Ezekiel, chapter the third —"And I will make thy tongue cleave to the roof of thy mouth, that thou shalt be dumb." Also to the first chapter of St. Luke, the 20th verse— "And behold thou shalt be dumb and not able to speak;" and also to verses 63, 64, in the same chapter —"And he asked for a writing-table, and wrote; .... and his mouth was opened immediately, and his tongue loosed, and spake."

Dr. Chowne considered it difficult to say whether her condition, partaking essentially of hysterical characters, might be influenced by mental impressions, partly involuntary, but at the same time under morbid impression partly encouraged.

She, in addition to making those references, produced a small pamphlet, requesting Dr. Chowne to read it, as it related to a case more like her own than any she had seen. This was a memoir of a poor woman stated to have been for several years dumb, and who, like herself, conversed by pointing to the letters of an alphabet, and who was many years bedridden, but to whom ultimately "the Lord gave speech." The pamphlet, which is of a religious character, is written in an extremely exciting strain; it was printed in 1848.

Dr. Chowne stated that he regarded this case as being of an essentially hysterical nature, and one of the class the symptoms of which are generally complicated, often perplexing, and sometimes, if not illusory, actually inexplicable. He had watched the case with interest; and although he certainly had not been without surmises, instigated by seeming want of uniformity between the patient's representations and facts which were either *visible* or within the reach of reasonable deduction, yet he was not prepared to affirm a decided opinion that those surmises are correct. With regard to prognosis, he was the less sanguine as she had been for a very long time under the care of physicians distinguished for great skill. Whether the passive state of the muscles of the arm and leg, the closed jaws, and the silent tongue, are the result of hysteria, or of more formidable disease, or of morbid volition, he considered the facts peculiar, and that they presented subjects of pathological interest.

She was subsequently put under the use of magnetism, administered so as to produce slight sensations and actions of the muscles; she said that her affected arm and leg acquired a permanent extra warmth and a better state of feeling from the use of the current. But no lasting benefit was obtained; and the patient was discharged six months after admission, without any change in her original state.

KENT OPHTHALMIC HOSPITAL.

Melanosis of the Left Eye; Extirpation of the Globe.

FRANCES G——, aged forty-seven, married, living at Strood, Kent, of delicate constitution and sallow complexion, was admitted into the Kent Ophthalmic Hospital, Maidstone, under the care of Mr. Woolcott, on the 29th January, 1852. She states that originally she enjoyed good health, but of late years has suffered much from dyspepsia. Twelve years ago she lost the sight of the left eye, and has had occasional attacks of inflammation since that time; but it was not until six months previous to her admission into the hospital that a small, fleshy-looking tumour, about the size of a pea, presented itself on the sclerotica, just below the cornea on the inner side. The pain in the eye at that time she describes as smarting, but the pain in the head was what she most complained of. Since then, the pain and tumour have gradually increased.

Upon examination, the following appearances and symptoms were reported in the case book:—

"An opaque lens, of dirty-yellow parchment colour, occupies the pupil, and is pushed with the iris against the cornea, which is dull, obliterating the anterior chamber, showing the existence of some disease at the back of the globe, thrusting these parts forward; a solid fungous mass of a light purple colour, ulcerated on the surface, and giving rise to a sanious discharge, protrudes through the lids, about the size of a small walnut, springing from the sclerotica just below the inferior edge of the cornea on the nasal side; on the upper part of the globe the sclerotica is thinned, and the choroid appears through; no glandular tumours of the neck or elsewhere; she complains occasionally of lancinating pain in the eye, excessive pain in the head interrupting sleep, debility and broken state of health; countenance anxious and haggard. Ordered full diet, a glass of port wine daily, and quinine mixture three times a day; a lotion, with equal parts of Battley's solution and water, to be applied to the eye.

"Feb. 12th.—The tumour having increased very much during the last few days, and the patient's health having been somewhat improved by good diet and gentle exercise in the open air, Mr. Woolcott this afternoon performed the operation for extirpation of the eyeball, the patient being under the influence of chloroform. An incision was made at the external commissure, and the palpebræ dissected back; the contents of the orbit were then removed in the usual manner. The bleeding from the ophthalmic artery was but slight, and soon ceased upon the application of cold water thrown in with a syringe. Pads and bandage were applied, and the patient put to bed.

"13.—Slept well, and feels comfortable; pulse quick and full; countenance flushed. Solution of tartrate of antimony, half an ounce; solution of acetate of ammonia, an ounce and a half; sulphate of magnesia, one ounce; camphor mixture, six ounces; one ounce to be taken every fourth hour.

"14th.—Going on favourably. The sutures were removed to-day from the incision at the external commissure. Repeat mixture three times a day.

"20th.—The patient has been going on most favourably since last report; sleeps well; appetite good; says that the pain in the head has quite left her. She will be discharged next week."

Reviews and Notices of Books.

On Rheumatism, Gout, and Neuralgia, as affecting the Head and Ear; with Remarks on some Forms of Headache. By WM. HARVEY, Surgeon to the Royal Dispensary for the Diseases of the Ear, &c. 8vo, pp. 292. London: Renshaw. 1852.

OF the numerous specialities into which the practice of medicine has been subdivided in the present day, none have greater claims upon the attention of the scientific practitioner than the diagnosis and treatment of diseases of the ear; not only because of their intrinsic importance, but also on account of the urgent necessity which exists for banishing the empirics from this stronghold of quackery. We feel bound, therefore, in every way to support those members of our profession, who, working in the right direction, are making an attempt to place the treatment of aural diseases on a foundation derived from physiological and pathological investigations.

As regards the present work by Mr. Harvey, we cannot do better than allow him to state his reasons for publication in his own words:—

> "The author's design in the present treatise is, to trace the relations existing between the ear and its appendages, and those gouty, rheumatic, and neuralgic disorders of the parts about the head and face, which often complicate, sometimes cause, and too often protract indefinitely, that most afflictive condition—partial or total deafness. His object is rather to draw the attention of the profession to what are already acknowledged facts, and for practical purposes, to present those facts clearly before the mind, than to advance novel views or theories. He will be well rewarded for publishing the results of his experience, if, in the words of Sir W. Temple, 'though he may not have been able to inform men more than they knew, he may yet have given them occasion to consider more than they do.'"

The work may be taken as evidence of much reading and industry on the part of its author, and we feel convinced that, to many of our readers, it will afford much useful information; as Mr. Harvey remarks—

> "Rheumatism affecting the structures of the ear has not hitherto, as far as my researches have enabled me to ascertain the fact, been noticed in any medical work."

The Physical Diagnosis of Diseases of the Abdomen. By EDWARD BALLARD, M.D. Lond., late Medical Tutor in University College, &c. pp. 276. London: Taylor, Walton, and Maberly. 1852.

THE profession is much indebted to Dr. Ballard for this unpretending little volume, which we feel certain, if carefully studied, will accomplish its object of removing many of the difficulties at present surrounding the diagnosis of abdominal diseases. The author has divided his work into three parts, the first of which is devoted to a description of the various methods of making a physical examination of the abdomen, consisting of inspection, mensuration, palpation, percussion, and auscultation, together with the general results afforded by these, in health and disease. In the second part, those abdominal diseases are considered *seriatim* which furnish indications of their presence on physical examination, such as diseases of the liver, pancreas, spleen, kidney, digestive canal, peritonæum, organs within the pelvis, abdominal vessels, and extra-peritonæal diseases. While in the third division we have an enumeration of the most remarkable physical signs, with the diseases by which each may be occasioned.

In a work of this kind it is difficult to select any particular passage which may afford a fair example of the author's merits; and the difficulty is increased on the present occasion by the limited space at our disposal. The remarks upon intestinal obstruction are so excellent, that but for their length we should place them before our readers. As it is, however, we cannot do better than quote the following observations on intestinal concretions:—

> "Concretions arising from the accumulation of various indigestible matters in the bowels commonly occur in the cæcum, or ascending or descending colon. According to their size and position, they give rise to *palpable* tumour, the form of which is that of the concretion. When a portion of the bowels is distended with matters of an indigestible nature, through any considerable extent, it may present a cylindrical form. If large, there may be some visible elevation of the surface over its seat. The tumour is hard; and when an accumulation of hard bodies, such as cherry-stones, has taken place—as in a case recorded by Cruveilhier (Anat. Pathologique, liv. 26, pl. 6)—a sense of crepitation, resembling that pro-

duced by emphysema, has been given to the hand, and a similar sound may be heard on pressure, by aid of the stethoscope. The tumours are often moveable, either by altering the posture of the patient, or by the hands; but this occurs when the concretion is situated in a moveable portion of the bowel, such as the small intestines or the transverse colon. Like fæcal accumulation, the tumour may be the seat of pulsation. Percussion elicits a dull sound over the tumour, not varied with resonance, as in fæcal accumulation."

The work is logically written, and the contents are well arranged: its utility, moreover, is much increased by the addition of a copious index.

Lectures on Clinical Medicine. By J. H. Bennett, M.D., &c., No. VIII. Pamphlet, pp. 50. Edinburgh: Sutherland and Knox.

Dr. Bennett's valuable series of lectures on clinical medicine have been already noticed with commendation in the pages of The Lancet. The present part contains reports of cases of cancer of the lung, &c., carbonaceous lungs, intermittent fever, remittent fever, continued fever, and syphilitic and mercurial poisoning. We quote the following remarks on the treatment of syphilis:—

"The treatment of syphilis may be said to be of two kinds,—namely, the simple and the mercurial. The profession are rapidly deciding in favour of the first, although some of its members still give mercury in inveterate cases. Many of those we meet with, therefore, have taken the drug, and we have to eradicate the effects of the mineral poison as well as that of the original disease.

"*The Simple Treatment* is divided into internal or medical, and external or surgical. The first consists in the observation of certain hygienic rules, and the employment of general therapeutic means. The diet must be light and mild, meat and all stimulating viands retarding the cure; even with the lightest diet the hunger should never be quite appeased. The regimen must be the more diminished and rigid in proportion to the youth and vigour of the patient. Diluent beverages, decoctions of barley, liquorice, and linseed, alone or mixed with milk, should be taken freely, to the amount, indeed, of several pints a day. Perfect repose must be secured by confinement to bed. Constipation must be obviated by the use of emollient clysters or mild laxatives. The air should be maintained at the same temperature; this is an indispensable precaution in chronic, consecutive, and mercurial affections. Exercise is only useful in the convalescent stage. In chronic syphilis, however, it may often be carried to fatigue with advantage. Tepid baths, repeated three or four times a day, are always attended with advantage. General blood-letting is often required where the primary disease is intense, or the system excited and the patient plethoric, but should not be used indiscriminately.

"In the external or surgical treatment, strict attention to cleanliness and the position of the diseased parts should never be lost sight of. Emollient decoctions or fomentations, or dressings of simple cerate, are the best applications, and the dressings should not be too frequently renewed. Leeches are generally necessary. The greatest benefit is derived from the external use of a concentrated solution of opium (in the proportion of about two drachms to one ounce of water;) it soothes excessive irritability in all cases. When the suppuration is moderated and the surface of the ulcer cleansed, stimulating dressings, consisting of solutions of the sulphates of alum and copper, the nitrate of silver, and sub-acetate of lead, favour cicatrization.

"In inveterate cases, more especially those labouring under tertiary symptoms, the iodide of potassium was introduced by Dr. Wallace, of Dublin, and used by him with considerable success. I have myself given it in numerous cases with benefit, in doses of five grains, three times a day, conjoined with emollient applications to the affected parts.

"*The Mercurial Treatment* consists in keeping up slight salivation, by means of the internal administration of blue pills or some form of mercury, sometimes conjoined with mercurial frictions or fumigations, at least for the space of a month. This physiological action of the drug may be produced by administering any of its preparations continuously in small doses. If combined with opium, they act less on the bowels and more on the system generally.

"It is necessary during its action, that the patient do not expose himself to cold. A certain irritability is produced, and the constant soreness of the gums, the metallic taste in the mouth, not to speak of the inconveniences of profuse salivation which occasionally occur, render this species of treatment anything but agreeable to the patient.

"Both kinds of treatment have now been extensively tested. In the year 1822, the Royal Council of Health in Sweden, having been charged by the king to conduct a series of experiments upon the different modes of treating venereal diseases, reports from all the civil and military hospitals were ordered to be drawn up annually. These reports establish the inconveniences of the mercurial system, and the superior advantages of the simple treatment. In the various hospitals of Sweden, 40,000 cases have been under treatment, one half by the simple method, the remaining half by mercury; the proportion of relapses has been, in the first instance, seven and a half, in the second, thirteen and two-thirds, in one hundred. Dr. Fricke's experiments in the Hamburgh general hospital were first made public in 1828. In four years, out of 1649 patients of both sexes, 582 were treated by a mild mercurial course, and 1067 without mercury; the mean duration of the latter method has been fifty-one days, and that by mercury eighty-five. He found that relapses were more frequent, and secondary syphilis more severe, when mercury had been given. When the non-mercurial treatment was followed, they rarely occurred, and were more simple and mild when met with. He tells us that he has treated more than 5000 patients without mercury, and has still to seek cases in which that remedy may be advantageously employed. He has never observed caries, loss of the hair, or pains in the bones, follow his treatment, and in all such cases which have come under his care, much mercury has been given.

"In 1833, the French Council of Health published the reports sent in by the physicians and surgeons attached to regiments and military hospitals in various parts of France. Some of the reports are in favor of a mild mercurial course, others in favor of simple treatment. They all agree in stating the cure by mercury to be one-third longer than by the other treatment. At Strasburg, mercury was only given to very obstinate cases. Between 1831, and 1834, 5271 patients had been thus treated, and the number of relapses and secondary affections calling for the employment of mercury has been very small. No case of caries, and only one or two instances of exostosis, had been observed. Full reliance may be placed on these facts, as regiments remain in garrison at Strasburg for five or six years.

"In the various reports now published, more than 80,000 cases have been submitted to experiment, by means of which it has been perfectly established that syphilis is cured in a shorter time, and with less probability of inducing secondary syphilis, by the simple treatment.

"These facts are now very generally admitted, and malignant syphilis is gradually disappearing. Twenty years ago, the most frightful secondary and tertiary cases were met with, and the usual treatment was profuse salivation. At present, such cases are rare. Abroad, owing to wise police regulations, the disease is infinitely more innocent even than it is at present in Scotland; and under the salutary influence of a mild and simple treatment, its virulence is daily abating.

"In appreciating the value of this important revolution in practice, we should not forget to eulogize those who had first the boldness to introduce it. The credit of this is mainly due, in England, to Mr. Fergusson, and other British army surgeons, who practiced it during the Peninsular campaign (*Medico Chir. Trans.*, vol. iv.,) and to Mr. Rose, of the Coldstream Guards (Ibid. vol. viii.) In Scotland, the writings and lectures of the late Professor John Thomson, of this university, were mainly instrumental in convincing Scotch practitioners of the evils of mercury in venereal diseases. In England, he Hunterian theory and practice have been deeply rooted, and in Ireland have been supported by the writings of Carmichael and Collis. Mercury in consequence is still very generally employed in those parts of the kingdom. The gigantic experiments made abroad, however, ought to convince the most sceptical; if not, let them compare what syphilis is in Scotland with what it was, and especially observe that we never see an instance of the disease such as that now in ward (Case 1,) unless the patient's system has been contaminated with mercury."

In quoting these passages we cannot express our entire concurrence with the views of their author.

Insanity; its Causes, Prevention, and Cure, including Apoplexy, Epilepsy, and Congestion of the Brain. By Joseph Williams, M.D. 8vo. London.

Dr. Williams has endeavored, in the present work, to supply a hiatus which he says has long been known to exist; and his avowed object has been, to make an essentially practical book, that may at once, when the emergency presents, be consulted by the practitioner. In this we think he has been successful, and for the application of his energies to so truly useful an object he is justly entitled to praise.

Dr. Williams has devoted two-thirds of his volume to the treatment of insanity, general and therapeutic, and has, in detail, considered and discussed the merits, uses, and effects of the various therapeutic agents in general use, weighing their claims, and awarding their value. We cannot follow him through this most useful portion of his work; but it is pleasing in these days, when the value of medicinal agents has been doubted, and expectant medicine, with the mystery of the globules, so dishonestly vaunted, to find the direct value of therapeutic agents so clearly shown.

"Insomnia or vigilantia," he says, "are generally the precursors, and but too frequently the constant concomitants of those suffering from insanity; nay, the very disease itself appears often to depend on this insomnolent condition; so that, if sleep can be artificially induced, the threatened affliction may be retarded or even altogether prevented."

With many good points the book is fairly open, in many parts, to animadversion; for instance, the influence of the stage on the manners of a people, is not a thing to be flippantly disposed of by two or three assertions, or a page of indifferent writing, set down just as easily as a man may write a prescription for a sedative. But perhaps Dr. Williams felt himself here upon ground that he but very little understood, and so, like a good tactician, he introduces a bit of poetry, and disposes of the subject.

We must, however, protest against the general censure which Dr. Williams has cast upon his professional brethren, by charging them with ignorance in respect to mental diseases; for, considering the very few opportunities which our public institutions offer for the study, it is remarkable to find medical practitioners, as a body, so conversant with the various forms of insanity. We might show instances in which Dr. Williams himself has exhibited some remarkable defects in his volume. A writer so open to criticism, should have paused before he ventured to libel an entire profession.

A very copious index, analytical and synthetical, enables the student with readiness to put his finger on any portion he may require.

Cyclopædia of Anatomy and Physiology. Edited by R. B. Todd, M.D., F.R.S. Part XLII. Longman & Co.

This important work now draws towards its conclusion. The present part contains a series of important articles on the Varieties of Mankind, by Dr. Carpenter; Vein, by Mr. Salter; Venous System, by Dr. M'Dowell; Vesicula Prostatica, by Professor Leuckhardt; Vesicula Seminales, by Mr. Pittard; Vision, by Mr. White Cooper; Vital statistics, by Dr. Guy; and Voice, by Mr. Bishop; the last-mentioned being incomplete in the present number, but promising to be a most valuable article.

We have been particularly arrested by the essay of Professor Leuckhardt on the Vesicula Prostatica, the interesting structure which has been proved by Weber to be the only analogue of the uterus. This splendid discovery in morphology is traced by the author in a masterly manner, and can leave no doubt on the mind of any physiological anatomist of the verity of Weber's views. It is shown conclusively that in all hermaphrodite animals the vesicula prostatica, or the male uterus, is developed in the same ratio as the general female attributes. Hermaphrodism is very common in goats, and many cases are given, illustrated by drawings, of the complete union of the sexes in these cases, there being the uterus and Fallopian tubes existing in conjunction with testes and the intromittent organ. It is truly remarked by Leuckhardt, that the discovery of Weber must place the morphology of the generative system on an entirely new footing, and that hereafter all malformations of these organs must be studied with reference to the Weberian structure.

But the most elaborate paper in the part before us is that upon Vision, by Mr. White Cooper, consisting of two parts—namely, natural and abnormal vision.

Treating of natural vision, the object of the author has been to give in a clear and condensed form the chief facts relating to light and the various complicated phenomena connected with vision; and in this part of his subject he refers to certain facts which have a special interest at the present time, when military authorities are so busily discussing the proper colour in which troops should be dressed, with the greatest regard to their safety under fire. We are not aware that the following facts having reference to this subject have been previously noticed. Mr. Cooper states that a series of experiments were performed by Lieutenant-Colonel Hamilton Smith, with the object of ascertaining "the liability of different colours to be hit as marks under precisely similar circumstances as to men engaged, size of target, weather, &c. The result showed the proportion to be as follows:—Red, 12; rifle-green, 7; Austrian bluish-grey, 5; and from subsequent trials, as from facts observed on the actual field of battle, Mr. Cooper further states that the Hanoverian red, in which our troops are clad, "is by far the most fatal colour, green next, then brown, and Austrian grey the least."

The subject of abnormal vision is treated of at considerable length, and is divided into—1, abnormal vision resulting from defective action of the retina or sensorium, as achromatopsy, hyperchromatopsy, and anorthopia; and 2, abnormal vision resulting from defective configuration of the eye, or from changes in the refractive media, as myopia, presbyopia and cylindrical eye.

The first of these divisions is very interesting, containing the fullest account with which we have met of that singular defect, the inability to distinguish certain colours—a defect the author believes to be far more common than is supposed. He treats of two distinct forms of achromatopsy—the congenital and the non-congenital; the former being always persistent, the latter being either permanent or temporary. Of congenital achromatopsy, two divisions are marked—the first comprising those by whom black, white, and the intermediate shades of grey, are the only tints recognised; the second including the vast majority of cases of insensibility to colours, and presenting a very remarkable diversity of phenomena. In these cases, the colour which of all others is the stumbling-block is lilac, and next to it, rose, indigo, and violet. On the other hand, yellow and blue are most commonly recognised. Non-congenital achromatopsy is described by Mr. Cooper as a morbid symptom which might easily be confounded with chrupsia; but the points of distinction are, that in chrupsia objects are either tinged with a prevailing tint, or it is confined to those which are white, coloured objects being properly recognised; whereas, in achromatopsy, one or more colours are effaced, and the individual is no longer cognizant of them. Several interesting cases of temporary achromatopsy are mentioned, one of which was connected with the Great Exhibition. Mr. Cooper mentions that "the extraordinary variety and glare of colours at the Exhibition were singularly distressing to the eyes, and numerous persons suffered from congestion of the choroid in consequence."

If little has been known respecting achromatopsy, still less are we acquainted with that strange defect to which the name hyperchromatopsy has been given. The characteristic of this affection is, to use the auther's description, that of not merely attaching colours to objects which, according to ordinary vision, really possess them, but also to other objects which possess them not, and this to an extent hardly credible. For instance, with persons subject to this affection, colours attach themselves to letters of the alphabet, figures, &c.; and were it not that such cases rest on good foundation, we might almost suppose the parties who have described these sensations were quizzing the philosophers.

Anorthopia is an affection of sight which we have not before seen mentioned, but it is certainly deserving of attention. It is characterized by the individual subject to it being unable to discern when objects are not parallel one to the other, and it is often accompanied by a want of ability to distinguish whether objects are symmetrical or not. Mr. Cooper considers that it may be overcome by proper practice and tuition.

The causes, symptoms, and treatment of myopia, presbyopia, and cylindrical eye, are treated of with brevity, but much valuable information may be derived from a careful perusal of Mr. Cooper's observations on these important subjects. The general treatment of the two first, as described by the author, is especially worthy of attention. Indeed, no one can rise from perusal of this very able paper without the conviction, that, for its length, it is by far the best which has yet been published on the subject of vision.

New Inventions
IN AID OF THE
PRACTICE OF MEDICINE AND SURGERY.

A Simple Contrivance to Moisten the Air in the hot Bed-room of a Person afflicted with Asthma or Consumption.

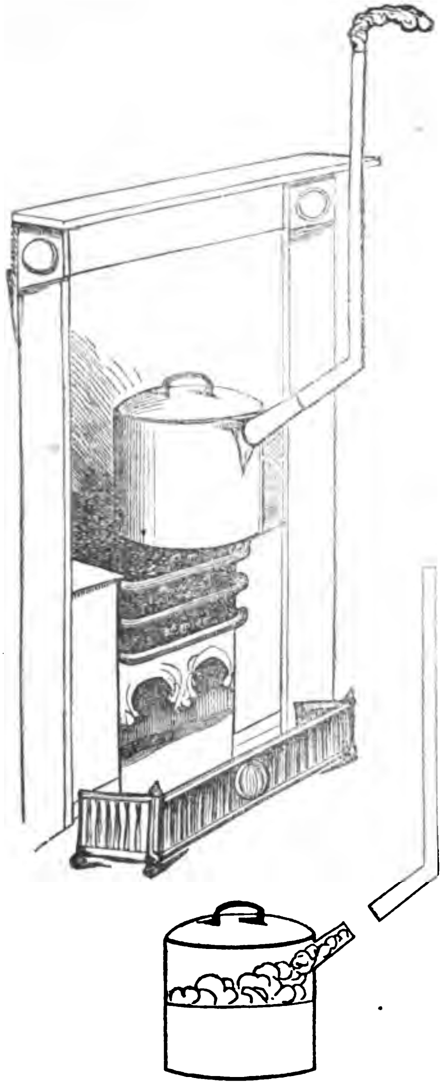
The following simple mode of moistening the atmosphere inhaled by persons afflicted with bronchial affections, has been forwarded to us by Mr. Thorn, and is the invention of Mr. Darke, of Paddington, who gives the following brief description of it:—

> "It consists of a common six-quart saucepan, with the lid fastened down, the handle taken out, and a tube, (an inch and a half in diameter,) of the same length, soldered in, through which the water, (not more than about four quarts,) is to be poured in; an-

other tube, with an elbow-joint, removable for the purpose of admitting the water, and of sufficient length to reach above the mantel-shelf, completes the apparatus. This would provide adequate moisture for a large room.

"Four quarts of water will evaporate in about five hours, and of course will require replenishing; if with boiling water, the better.

"A few drops of ether poured in at the top of the tube, are very useful and refreshing."



There is no question that in diseases of the lungs, such as spasmodic asthma, bronchial congestion, phthisis, &c., an elevated temperature has always been considered of great utility. The objection to large fires, and even to that truly philosophic apparatus, Dr. Arnott's stove, has hitherto been, that the natural moisture of the atmosphere has been evaporated, leaving the patient a hot, dry air to breathe.

Mr. Darke states that "this contrivance may be obtained at an outlay of only three shillings, which will fill the room with the moist summer air of Devon." Without doubt, there are many cases of bronchial and asthmatic affections that may derive great benefit from this invention.

Artificial Legs.

A good and efficient substitute for a lost limb is a matter as worthy the consideration of the operating surgeon as it is most important to the mutilated patient.

The perfection to which this apparatus has arrived, and which is daily progressing, we saw this week beautifully exemplified in an artificial leg made for the Marquis of Anglesea. It should be premised that on the proper adjustment of the socket into which the stump is to be received, depends, not merely the comfort of the patient, but the very efficiency of the artificial limb itself.

Mr. Gray, of Cork-street, the manufacturer of the specimen referred to, in the first place makes a cast in wax upon the stump, and then by a peculiar method, transfers, as it were, this impression to light and tough desiccated willow, in such a manner that every swelling and hollow is represented in the socket. Thus it is, the machine can be worn without the risk of undue pressure, or if any part be more than commonly tender the pressure can be easily regulated or removed.

The next feature is the substitution of cat-gut in place of the tendo-Achillis, in such a manner that an elastic propelling power is exerted at every step, and thus does all for the artificial leg that the real tendon accomplishes for the natural one.

The joints are even and graceful in their action, and are regulated by tendons in place of springs; and the mere movement forward of the stump brings each to the performance of its proper duty. There is no abrupt or jerking movement in the leg, and the free and noiseless action of the whole structure is most satisfactory to the wearer.

Foreign Department.

Amputation of a Healthy Upper-jaw, as a preliminary step to the Removal of a Fibro-plastic Tumour of the Pharynx.

M. Maisonneuve presented to the Academy of Medicine of Paris, at the end of the meeting of the 20th of April, 1852, a patient upon whom he had performed the amputation of a healthy superior maxilla, in order to render practicable the extirpation of a fibro-plastic tumour situated in the pharynx, with polypoid extensions into the nasal fossæ, the frontal sinuses, the temporal fossa, the zygomatic space, and the cheek. The operation was performed in such a manner that the incisions carried along the mesial line, and the commissure of the lips, did not divide any motor nerve. The movements of the face are thus perfectly preserved, and no deformity is visible. When the wound was quite healed up, M. Maisonneuve had an apparatus constructed to which the teeth of the patient were adapted; this apparatus comes, therefore, to answer the purpose of an obturator and a set of teeth. Mastication and articulation are performed as well as in the normal state, thanks to this mechanical contrivance, and the loss which this patient has undergone is thoroughly concealed.

A New Way of Taking Cod-liver Oil.

Dr. **Benedetti** recommends the following means for disguising the nauseous taste of cod-liver oil:—Make a paste with the oil and powdered starch of arrow-root, and prepare the bolus by wrapping it in a moistened wafer. About sixteen of such boluses night and morning suffice in the beginning; more may subsequently be taken, or they may be made larger, as the swallowing of them becomes easy by habit.

Occulists in Turkey.

There is being published, in the *Deutsche Klinik*, an analysis of Dr. **Riegler's** work on the state of medicine in Turkey and the popular remedies used in that country. We find, amongst other matters, the following particulars regarding ophthalmological practice:—"The Turkish occulists do not go beyond depression in cataract, as taught by Celsus, and they practise no other operation on the eye or its appendages. All over Turkey inflammatory affections of the eye are treated by leeching, blisters, and, without exception, with astringents, (no fault can certainly be found with this practice.) In chronic ophthalmia there is in use, among the lower classes, a compound of seepia and realgar, which the sick introduce under their lids; and they likewise employ an ointment made of red precipitate, sulphate of zinc, acetate of lead, alum, and the juice of the scilla maritima.

Baneful effects of bad Cider in Paris.

Several very serious attacks of colic, with great prostration, have lately come under the cognizance of different practitioners of the French capital, the cause of which has been traced to the use of cider adulterated in the following manner. It has been found that unprincipled brewers used wine of very dark colour, coming from the South of France, to make cider, by first taking off the colouring matter with acetate of lead, and then causing the fluid to ferment by the addition of rotten apples. They then contrived to produce, by adding a great deal of water, a clear, pungent, frothy beverage, pleasant both to the eye and the taste, and which bore a striking resemblance to good cider. This compound had of late been in great request, and its evil effects are still noticed; the symptoms being principally vomiting, unconquerable constipation, colic, leaden hue of the skin, convulsive movements, impending paralysis, and the characteristic blue line of the gums. The government have, through the committee of hygiène, instituted the most searching inquiries on the subject.

Chloroform Ointment for Hemicrania and Neuralgia.

M. **Cazenave**, of Bordeaux, recommends the above ointment, which is prepared as follows:—Pure chloroform, three drachms; cyanide of potassium, two drachms and a half; axunge, two ounces; add a sufficient quantity of white wax to make an ointment of the usual consistence.

Foreign bodies introduced into the Urethra.

In a late number of this journal (vol. 1. 1851, p. 196,) a case was reported in the "Mirror," where Mr. Birkett, of Guy's Hospital, removed a penholder from the urethra of a young man who had himself introduced it. A somewhat analogous intance was lately mentioned by M. Baché before the Surgical Society of Paris. A man, seventy years of age, took a fancy to pass into his urethra a twig of fir-tree, with short, bristly, closely adherent leaves. The twig used to be introduced with the attachment of the leaves looking posteriorly, so that it glided easily enough, and the slight resistance offered by the leaves when the branch was being withdrawn seemed to suit the old man's depraved taste. One day, however, the twig broke within the urethra. On examination, the anterior extremity of the fragment was found corresponding to the bulb. As the canal was found to be sufficiently dilated to admit polypus forceps, M. Baché introduced the instrument as far as the locking of the branches, and succeeded in drawing out the twig. Strange to say, no unpleasant symptom occurred. The twig is being preserved in spirits, it is covered with all its leaves, and is four inches long.

Ague treated by a Terebinthinate Liniment along the Spine.

M. **Aran** mentions, in the *Bulletin de Thérapeutique*, that he has succeeded in staying ague fits by the use of the following liniment: Essential oil of turpentine, three ounces and a half; chloroform, about one drachm. The patient was a young man, with whom quinine had failed, and the above liniment was used about two hours before the fit. The latter appeared at the usual hour, but was somewhat shorter than the preceding; the second was kept off for four hours; the third failed to appear altogether, and the patient was soon quite well, experiencing only for a few days a certain amount of discomfort at the accustomed hour of the fits. The liniment had several years ago been introduced by M. Bellencontre, laudanum being, however, used instead of the chloroform employed by M. Aran.

Operation for Harelip the day after birth.

M. **Guersant**, surgeon to the hospital for sick children in Paris, has lately operated, with successful results, upon a child, *one day old*, affected with harelip and a fissure of both hard and soft palate. The operation was performed in the usual way, except towards the septum nasi, where M. Guersant placed a strong serre-fine (diminutive spring forceps,) the rest of the opening being brought together with the common pins and twisted suture. Fifteen days after the operation the parts were firmly cicatrized, and the child quite well, the fissured hard and soft palates having of course not been interfered with.

Miscellaneous Correspondence.

ON TRACHEOTOMY IN APOPLEXY AND EPILEPSY.

Note from **Marshall Hall**, M.D., F.R.S., &c.

To the Editor of The Lancet.

Sir,—*Laryngismus* is the event which separates the *graver* from the *milder* forms of apoplexy and of epilepsy, assuming in the former the *paralytic*, in the latter the *spasmodic* form.

It is to avert the effects of this laryngismus that I propose to institute tracheotomy. This is my object, and has been so from the beginning. I have never had the idea of proposing empirically a remedy for the *name* of a disease, be it apoplexy or epilepsy. In order that my view may be carried out fairly, the following facts must be first established:—

1. The case must still be inorganic; there must be a well-founded *hope* of doing good;

2. There must be the dignus vindice nodus; there must be sufficient reason for adopting the measure; there must be *danger* to life, mind, or limb;

3. This danger must depend on *laryngismus;* that is, on paralytic laryngeal dyspnœa or stertor, in the apoplectic or comatose cases, and on spasmodic laryngeal dyspnœa in the epileptic.

In regard to all these circumstances a just and sufficient *diagnosis* must be established, as in all other cases in the practice of medicine. Without such diagnosis the remedy would be, must be, employed in vain, as it would assuredly be instituted without sufficient reason.

Every event convinces me that, if these just precautions be effectually adopted, the success of the remedy will prove infallible; and that the cases are numerous in which life and intellect will be saved.

If the remedy prove ineffectual, it will be because the DIAGNOSIS *has been inadequate.*

I am, Sir, your obedient servant,
MARSHALL HALL.

ON THE USE OF YEAST IN THE TREATMENT OF BOILS.

To the Editor of THE LANCET.

SIR,—I have just read a paper on the Prevailing Furunculoid Epidemic, delivered at the Epidemiological Society by Mr. Hunt, at the house of Dr. Babington.

These troublesome boils are equally as painful to bear as obstinate to cure, hardly yielding to any treatment by ordinary medicinal means, for no sooner do you succeed in getting rid of one ere another appears, thus baffling and setting at defiance most remedies.

During a period of eight years and more, being in practice in the West of England, where these annoyances rather raged, and were known by the name of "pinswills," I was induced to try the efficacy of common yeast, (having failed to give relief in general modes of treatment,) in doses of a tablespoonful with some water, three times a day, for an adult, and smaller doses for children.

I have now practised in this town nearly six years, and have had frequent opportunities also here of witnessing the good effect of yeast in these troublesome affections, easily consummating a rapid and complete cure without further recurrence, and by a most simple remedy, within reach of all.

Should you deem this worthy of your observation, perhaps you will kindly give it a place in your next number. I am, Sir, yours obediently,
J. R. MOSSE, M.R.C.S.

MIDWIFE'S MIDWIFERY.

To the Editor of THE LANCET.

SIR,—At five o'clock A.M., on the 29th of February, I was requested to visit a woman, aged forty, who, her husband informed me, had been delivered of her eighth child by a midwife, between eight and nine o'clock the previous evening, and was now suffering from a discharge, or something of that kind. On entering the patient's room, I soon discovered the state of affairs. Everything appeared saturated with blood, the woman's skin was cold and clammy, the pulse not perceptible at the wrists, and the uterus distended. I immediately gave her some gin, that being the only stimulant in the house, introduced my hand, and removed a quantity of coagulated blood, also a portion of placenta between three and four inches square, which was slightly adherent towards the fundus; and by pressing externally with my right hand, while I gently withdrew my left, I got the uterus to contract, though feebly. But it was too late, for I had but just time to apply a tight bandage, under which I placed a pad, before my patient expired. During the time I was thus occupied, which was little more than five minutes, the midwife was talking about her experience, and saying she considered it a false conception, as she had removed all the afterbirth piecemeal, on account of its being rotten, and she was sure she had done her best; but to which I replied, I supposed she had, but it was a pity she had not sent for a medical man earlier.

The husband, not feeling satisfied about his wife's death, wished for a coroner's inquest—a wish I rather encouraged, in the first place to clear myself, and in the next to expose the ignorance and negligence of the midwife, who had allowed the woman to continue flooding from before nine o'clock P.M. till five A.M.

An inquest was accordingly held on the 5th inst., when I had no hesitation in saying the woman's death was caused by flooding, through the gross ignorance and neglect of the midwife. The room was cleared, and after some time, a verdict of "*Died of natural causes*" was returned, with a polite caution that the midwife should in future send for proper medical assistance earlier. I shall not attempt to say anything about the verdict, fearing I might say too much; but must I bow my head, and in future pretend to believe that all causes of death are natural?

NISI PRIUS COURT, NEWCASTLE.

(*Before Lord Chief Justice* CAMPBELL.)

SMITH *v.* LYNCH.

THIS was an action for compensation for damages alleged to have been sustained through want of care and skill on the part of the defendant, who is a surgeon in practice at Cowpen.

Mr. Watson Q.C., and Mr. Blackwell, appeared for the prosecution, and Mr. Overend and Mr. Davison for the defence.

It appeared that James Smith, a youth about thirteen years of age, the son of the plaintiff, who is a pitman, in the early part of December last accidentally fell from a limekiln, and sustained a compound fracture of the thigh-bone. On being taken home, Mr. Lynch, the defendant, was sent for, who set the broken bone, and applied splints in the usual way. A short time afterwards, the youth had a succession of fits, and the bones were displaced. The operation of re-setting was performed, but the case, which did not appear to present any formidable difficulty in the first instance, in a short time assumed a more serious aspect. Mr. Lynch attended his patient daily, and also obtained the assistance and co-operation of Mr. Cockburn, another medical practitioner in the locality. The mother and nurse of the youth, however, seem to have become alarmed at the symptoms presented, and discharged Mr. Lynch from attendance, and called in Mr. Mann and Mr. Ward, who, on examination, decided that amputation was necessary in order to save the life of the patient. Before operating, however, they deemed it prudent to confer with Mr. Fife, of Newcastle, whose professional skill and scientific knowledge, the judge remarked, on sending the case to the jury, would seem to be hereditary, and whose experience enabled him to decide in the most difficult cases. Under Mr. Fife's direction, amputation was performed, and then it was discovered that the part of the bone between the fractures had ceased to possess vitality, and, therefore, never would have united. These several parties were examined on behalf of the plaintiff, the examination being directed to show that the splints were not such as ought to have been applied, and that the treatment of the patient from the first was improper, whereby amputation was rendered necessary; but on all these points the evidence failed to support the case, it being admitted, on cross-examination of the witnesses, that the splints were similar to those used in all the great hospitals of the kingdom, and that it was the duty of the surgeon to endeavor if possible to preserve the limb, and only resort to amputation when there appeared no other way of saving the life of the patient.

The learned judge, on hearing the evidence of the medical witnesses, remarked. that in his opinion the plaintiff had failed to make out his case, for that instead of proving that there had been negligence and want of skill on the part of the defendant, he proved the contrary. He left that, however, to the consideration of the jury, and remarked that if they wished to hear the counsel for the defendant, they might do so, but, for his own part, he thought that quite unnecessary.

The jury, after laying their heads together, determined upon hearing the defendant; after which,

His Lordship endeavored still further to elucidate the case by a luminous though brief address.

The jury, then, without retiring, returned a verdict for the defendant.

NORTHERN CIRCUIT, DURHAM.

CROWN COURT, JULY 28.

(*Before Lord Chief Justice* CAMPBELL.)

Jane Harland, aged twenty-two, was indicted for the wilful murder of her own new-born male child. Mr. Seymour prosecuted, and Mr. Serjeant Wilkins and Mr. Davison defended the prisoner.

The prisoner, it appeared, is the daughter of a pitman, who resides at Sherborn-hill. They lived together alone in their cottage, the father sleeping in a ground-floor room, the prisoner up-stairs. For some time previous to the 25th of last June, the father's attention had been excited by his daughter's appearance. On that night, he was awakened about ten o'clock by hearing a foot-step cross his room. He, however, took no further notice of it, and went to sleep. He rose early, and about half-past six in the morning, the prisoner complained of a pain in her stomach, and wished for some tea. The father then went to his work, and on his way told his daughter-in-law, and a woman named Short, to go and see the prisoner, and, if she become worse, to send for a doctor. These two women accordingly went to see her, and found her complaining of pain in her body. They accused her of being in labour pains, and one of the women went for a doctor, and while she was gone the prisoner told Short, the other woman, that she had had a false conception. A surgeon, named Crowdon, soon after arrived, and found that she had been recently delivered of a child. This, however, the prisoner stoutly denied. A search was, however, made in the room, and a bundle of clothes was found stained with marks, confirming the surgeon in his opinion. Another surgeon soon after arrived, named Shaw, and, on a further search being made, a bag was found in the room, containing the body of a new-born male child. Mary Harland, her sister-in-law, then said, "You have done a bad job in no providing clothes for it." The prisoner said she had provided clothes, which were in a pillow-case up-stairs. This turned out to be true. She then, in answer to questions put to her, said she had not her senses when the child was born, and she did not know whether it was born alive or not. Both medical gentlemen were of the opinion that the child had breathed. The head was livid, and in the stomach was found half an ounce of water quite clear, as though imbibed while the child had been submerged in water. From these appearances they were of opinion that the child had been suffocated.

Mr. Serjeant Wilkins, in his address to the jury, contended that the evidence was inconclusive to show that the child had been born alive; and that, even if it had, from anything that appeared it might have been suffocated by its mother in the agony of giving it birth without assistance. The finding of the clothes provided for it negatived the conclusion that she could have intended to harm it.

His Lordship carefully summed up the evidence, remarking on the absence of any evidencce of water being found to support the theory of the medical men that the child had died by drowning. In addition to which, the prisoner had before borne an excellent character, and was said to be fond of children, and had evidently made provision for the birth of her baby.

The jury, after a short consultation, *acquitted* the prisoner.

WESTERN CIRCUIT, EXETER.

ALLEGED MALPRACTICE—JACKSON AND WIFE *v.* ROE.

In this case the plaintiff and his wife sued the defendant, Dr. Roe, a physician practising in Plymouth with a Glasgow diploma, for alleged malpractice. The case, as redorted in the *Western Times*, occupies nearly a page of that paper, and the report goes into details which bear little upon the merits of the case, which was really whether Mr. Jackson was or was not affected with an uterine disease requiring the frequent use of the speculum, the application of caustics to the uterine neek, &c. The evidence on the point was somewhat contradictory, but it would appear at all events that some disease existed. The evidence of the various medical practitioners, who were examined was somewhat contradictory as to the use of the speculum; and before making any comments on the case, we shall wait the promised publication of a correct version of the trial.

Medical Facts, News, Items, &c.

MR. WAKLEY, LATE M. P. FOR FINSBURY.—At a meeting of the supporters of Lord Robert Grosvenor and Mr. Osborne, held on Monday, July 19th, in the Belvidere Tavern, Pentonville, in the borough of Finsbury, Mr. Williams, M. P. for Lambeth, in reviewing the late House of Commons, said: "There is a gentleman, who was one of the members of that house, but who unfortunately is no longer a member of the legislature—I mean Mr. Wakley, (cheers,) whose absence has created a void which cannot easily be filled up, for no man can take his place. (Hear, hear.) His wit and his sarcasm gave a most important turn to the debates, and invariably confuted and confounded the enemies of liberty and the people. (Hear, hear.) I, however, trust that ere long the people will again have the powerful aid of the talent and indefatigable industry of that long-tried and uncompromising patriot. (Loud cheers.)"

MEDICAL PRACTITIONERS IN CUBA.—A gentleman, who is a licentiate of Apothecaries' Hall, and a member of the Royal College of Surgeons, but who some time ago went to Cuba, says that although he was so qualified in this country, he was fined £20 in Cuba for practising without a license there, and that it cost him £200 before he could fully qualify himself in that colony. Before obtaining a license to practise, he had to undergo a most rigid examination in the following manner:—Hospital patients were brought before him, and he was asked the nature of their complaints, and the treatment that their disease required. Having undergone this ordeal before a body of examiners, he then obtained license to practice. This gentleman also says that none but qualified men can practise surgery, and that a surgeon cannot prescribe nor a physician amputate, under a penalty of £20, so that each branch of the profession is kept distinct, unless the practitioner has obtained diplomas from both colleges.

City Orthopædic Hospital.—The first anniversary dinner of this institution took place on Tuesday last at the London Tavern. The chair was occupied by Lord Carlisle, who was supported by several gentlemen of influence. Upwards of 100 friends to the charity sat down to an excellent dinner, supplied in the best style by Messrs. Bathe and Breach. It appeared from the report that the hospital had met with an almost unprecedented success, and that during the preceding twelvemonth upwards of 800 patients had received relief at the hands of the medical officers. A course of lectures on orthopædic surgery had been delivered by the surgeon, Mr. Chance; and to these, members of the profession were free. The report was most satisfactory in every respect, and nearly £700 were subscribed at the dinner. Amongst the toasts were "the Chairman," "the Founder of the Hospital, Ralph Lindsay, Esq.," "the Surgeon, E. J. Chance, Esq.," &c.

University of London.—The number of candidates who have passed at the recent matriculation examination is so great as to preclude the possibility of our publishing the lists. It is understood that 250 candidates entered themselves for examination: as is usual, some few withdrew on seeing the papers; thirty-seven were rejected; 151 passed in the first division, and fifty-five in the second. It thus appears that 206 under-graduates have been added to the University Calendar, a number far exceeding that of any previous year. There can be no more convincing evidence of the rapidly spreading estimation in which the degrees of this University are held. We have reason to believe that not a few students profited by the advice we gave to take advantage of the opportunity of enrolling themselves among the alumni of the University, in order to come within the scope of the clause exempting the University from the Militia Bill. We are also glad to observe that there is a large proportion of medical students in the list.

Death from alleged Improper Treatment.—On Saturday, W. Harding, Esq, coroner, held an inquest at the Plough Inn, Kidsgrove, on the body of Daniel Mason, a lad twelve years of age. Mr. Troutbeck, who had made a post-mortem examination, stated, in the course of his evidence, that he found the stomach of the deceased empty, with the exception of a few grains of herb, which, in his opinion, had been taken as a powder, but he could not positively state what the herb was. The larger end of the stomach was inflamed, but not extensively, though quite sufficient to cause death. The mother of the deceased deposed to her son having been taken poorly about six weeks ago; that she first obtained a powder and a bottle of medicine from Mr. Meadowcroft, a grocer and druggist; that afterwards she called in a Mr. Beech, whom she understood to be a herbal doctor; that he visited her son several times, and supplied her with powders and herbs to make tea for him, and which he took; that the lad became worse; that Mr. Beech ultimately advised her to send for a surgeon, which she did; and that the lad died before he had been seen by a regular medical practitioner. After some consultation, the jury found a verdict that the deceased had died from the effects of inflammation, and at the same time they requested the coroner to give Mr. Beech a caution. Mr. Beech was accordingly cautioned, and distinctly given to understand that if any similar case occurred, he would in all probability have a verdict of manslaughter recorded against him.

⁂ If Mr. Beech were to receive a whip nicely applied to his back, instead of a "caution" addressed to his ignorant mind, he would only get what he richly deserves.—Ed. L.

Nees von Esenbeck's Herbarium.—This rich collection is at present for sale at Breslau, and contains 340 volumes, arranged according to Linnæus's system. Each volume presents from 100 to 120 species, and there are plants from the East Indies, the Cape, Australia, and tropics, the collection of the latter being especially rich. There is also a volume of Brazilian plants, which are not yet classified, five volumes of "plantæ Whightianæ," and three volumes of Japanese plants. Each volume is offered at a fixed price, which varies according to its especial and relative value. The whole collection will amount to about £2800, so that the average price of a volume is about £4.

English Surgeons Before the Academy of Medicine of Paris.—We perceive, by the report of the meeting of the Academy of Medicine of Paris, which took place on the 15th of June, 1852, that Mr. Curling, of the London Hospital, has sent a paper on the Non-malignant Fungus of the Testicle, the communication being accompanied by a model in wax and pathological preparations. The paper has been referred to Messrs. Velpeau, Malgaigne, and Ricord, who will report upon the same. It is perhaps in the recollection of our readers that these three distinguished surgeons took a very active part in the discussion which lately took place in the Academy, upon a new mode of treatment proposed by M. Malgaigne in non-malignant fungus of the testicle.

Munificence.—We have great preasure in recording an act of princely munificance on the part of the London, Brighton, and South Coast Railway Company, who have had their attention directed to the claim of the Medical Benevolent College, at once subscribed £100 to the fund now being raised to carry out the object of the benevolent founder, and, in addition, have offered to carry all the building materials for one penny per ton per mile. The funds of the Central London Ophthalmic Hospital have just been augmented by the sum of £100 from the executors of the late Miss Harrison, of Worcester, which this benevolent lady left to the hospital free of legacy duty.

Extraordinary Fecundity.—A Belgian paper states that a woman, thirty-three years of age is now living at Liege, who affords an astonishing example of fecundity. She was lately confined of triplets, who are respectively her twenty-second, twenty-third, and twenty-fourth children. She has thus had, during nine years of married life, twenty-four children, all in good health, and of the female sex.

THE LANCET.

Journal of Medical, Surgical, and Chemical Science and Practice, Criticism, Literature and News.

MR. WAKLEY, M.P., EDITOR. J. HENRY BENNET, M.D., J. WAKLEY, JR., SUB-EDITORS.

IN TWO VOLUMES ANNUALLY.

VOL. II. NEW-YORK, OCTOBER, 1852. No. 4.

Lectures
ON
LITHOTOMY AND LITHOTRITY.

(*Delivered at St. Mary's Hospital.*)

BY WILLIAM COULSON, ESQ.,

SURGEON TO THE HOSPITAL.

(*Continued from August No.*)

LECTURE II.

STRICTURE OF THE URETHRA AND PERINÆAL SECTION.

GENTLEMEN,—I had proposed continuing to-day my lectures on lithotomy and lithotrity, but an interesting case of stricture of the urethra, in which I performed the operation of perinæal section, and which terminated fatally from purulent infection of the blood, induces me to direct your attention to the subject of stricture, and the operations performed for the relief or cure of that disease. The case you cannot have forgotten, for the operation was performed on the 21st of April, immediately after the delivery of my lecture on purulent infection connected with operations on the genito-urinary organs; and it is not a little remarkable that the subject of the very next case should have been attacked and cut off by the same disease as the one on which I had been lecturing.

The particulars of the case to which I would now beg your attention, are as follows:—Richard S——, aged thirty-four, warehouseman, was admitted April 16th. He was a rather thin man, with dusky, sallow countenance; stated that two years ago, he was laid up with cholera for two months, since which he had always been rather weakly. Eight years ago he was struck on the perinæum by a bar of iron, and soon after had painful micturition, with a smaller stream than before, and swelled testicle. The stream has gradually diminished in size up to the present time, and he describes his water as passing out like steam from a boiler. Sometimes he is obliged to make water often, at others not. For the last three months he has had bougies armed with nitrate of silver passed down to the stricture, but no instrument has been got into the bladder.

April 21st.—Syme's smallest staff was passed into the bladder, and the stricture divided on it through the perinæum. No. 6 silver catheter was then passed into the bladder and retained.

22nd.—Feels pretty comfortable; some urine flows through the wound as well as the catheter. In the evening he had several rigors, with great thirst and quick pulse, and pain in urethra. Ordered an opiate.

23rd.—Still great pain, but less shivering. Catheter withdrawn.

24th.—Has been easier since the withdrawal of the catheter; urine has come both through the penis and wound.

25th.—In the afternoon he became sick, and had a little more shivering.

26th.—Is still sick, and is rather low-spirited; urine flows both by the wound and penis, with considerable scalding; vomited green matter.

27th.—Sickness subsided; bowels not open; feels better. Quinine mixture, one ounce, twice a day; chloride of mercury, three grains, at bed-time. After taking his quinine, he was seized with violent pain in the cardiac region; an opiate was administered, which relieved him for a time, but the pain increased in the evening; pulse 112; respirations hurried; skin hot; tongue white. To have half an ounce of castor oil four hours after his pill.

28th.—Pulse 120; rather feeble; distinct pericardial friction-sound; tongue white; skin not so hot as last night; most of the urine comes through the penis; he complains of its scalding him much; there is pus secreted in the wound, which looks healthy. Leeches to the region of the pericardium. Calomel with opium, bark and ammonia. Crepitation in spots in right lung; friction-sound very indistinct; pulse 120; very feeble; rather less pain. Ordered wine.

29th.—No distinct friction-sound; has occasional stabbing pain, especially on taking a deep breath, on the left side of the chest; tongue white; bowels open; some tenderness over the liver; skin rather clammy; respirations 32; wound looking healthy, no tenderness around it; urine rather high-coloured, has not so much pain on passing it; slight tenderness in loins; pulse 136; very feeble and compressible; increased dulness over the heart, as high as the third rib. —Twelve P.M.:—Complains of pain in the wound; is suffering from great pain in his chest; dulness somewhat increased.

30th.—Rather less pain in the chest; less dulness over the heart; more pain and tenderness about the wound; tongue rather cleaner; pulse 120, weak; pleuritic friction-sound near the heart; bowels not open; urine rather high-coloured, not albuminous, contains more mucus; complains of flatulence: blister to the region of the heart; wine increased.—Five P.M. Had another attack of shivering; pulse very feeble and quick; skin cold; lips blue; countenance altogether congested, and expressive of pain; diffusible stimuli with opium. At ten P.M. he became delirious, trying to get out of bed, and shouting out; pulse exceedingly feeble and rapid.—Half-past twelve: After two opiate draughts, he was dozing quietly.

May 1st.—Slept till half-past five A.M., since which time his bowels have been open three times; had another attack of shivering at a quarter to eleven, and is now (half-past eleven) in a profuse perspiration; pulse 140, stronger than last night; tongue coated with a brownish fur, getting rather dry; complains greatly of thirst; mouth a little sore, and has made water freely; it is of a higher colour; the wound is closing up; there is some hardness about it; less urine passes through it; pleuritic friction continues, but little more than normal dulness over the heart.

He had another attack of shivering in the afternoon; at one A.M., May 2nd, he was dozing a little; by half-past three A.M., he gradually sank, and died quietly, being sensible to the last.

The body was examined thirty-six hours after death; weather cool; cadaveric rigidity persistent, more especially in the lower limbs. The body was not in an emaciated condition, but there was a sparing quantity of subcutaneous fat.—Thorax: On opening the cavity of the chest, the left pleural sac was seen to contain about a pint and a half of serous fluid of a yellow colour, unmingled with shreds of fibrine or blood; on the right side about one ounce of the same description of serum was present. Apparently no inflammation of the right side had existed, although the parietal layer of the costal pleura was stained of a deep red colour. The same kind of staining was visible on the left side, but here the visceral layer of the pleura had evidently been inflamed, and that recently. Slight and somewhat soft fibrinous adhesions existed between the exterior of the pericardium and the pleural covering of the lung which overlapped it; the lobes also of the left lung were connected to each other by delicate adhesions, which prevailed chiefly along the sharp margin of the lobe. There were also visible along the edges of the lobes, and scattered here and there beneath the surface of the left lung, dark patches of capillary phlebitis, small and arborescent in character, which seemed confined to the left lung, as I was unable to distinguish any in the right. The lungs themselves contained purulent deposits, small and sparingly scattered just beneath the pleura, prevailing most about the opposed surfaces and margins of the lobes. One of these deposits, much larger than the rest, was found on the lower free margin of the upper lobe of the left lung, and was encircled by a broad patch of capillary phlebitis. All the other deposits were in like manner characterized by a ring of capillary phlebitis which surrounded them. The lungs were œdematous, in consequence of static congestion. The pericardium, on being opened, presented a remarkable aspect. Its visceral layer was covered completely from the roots of the great vessels to the apex of the heart, by an uniform, yellow, softish layer of fibrine, about three lines in thickness; this covering fairly obscured the exterior of the heart, so that the latter could not be seen; on being examined closely, it was manifestly disposed in a solid network, having scattered over it small circular white spots, not unlike minute deposits of pus. To this singular effusion, the parietal pericardium adhered, excepting at the most dependent part posteriorly, where it seemed free for a small extent of surface. The adherence was slight, and the parietal layer easily peeled off, and the polish of its surface hardly appeared to have been lost, in consequence of its connexion to the fibrinous layer. The parietal layer itself betrayed evidences of inflammation, having a network of ramifying vessels, injected with dark blood visible on its surface. On opening the heart, its substance was found firm and healthy; the semilunar and other valves were not diseased. The endocardium, however, and the lining membrane of the great vessels, were stained in the same manner as the pleura, though not of so deep a red. The right cavities were filled with clots of firm consistence: the left ventricle also held a small clot.—Abdomen: The peritonæum appeared healthy; the stomach was large, and distended with gas. The liver presented no purulent deposits nor signs of disease. The spleen also was healthy. The capsule of both kidneys was adherent in the vicinity of the hilus, and that of the right did not strip off with facility. Small patches or spots of capillary phlebitis were scattered over the surface of these organs, and, after a close search, extremely minute points of pus were visible on the surface of both kidneys, in one or two situations. No further appearances of this nature were exhibited by making sections, nor were any other evidences of disease visible in the substance of these organs.—Pelvis: The bladder was capacious; its coats were thickened, and its mucous membrane posteriorly somewhat congested. The prostate exhibited some rough depressions on either side; the verumontanum was prominent. The membranous part of the urethra was in a state of induration from long-continued inflammation. The perinæal incision was in the middle of the canal, and had divided the bulbous portion of the urethra, and ceased just at the anterior extremity of the membranous. The whole tract of the urethra, from the prostate to the glans penis, presented an inflamed and congested mucous membrane, under which the submucous tissue abounded in small, round purulent deposits, which were scattered plentifully, like yellow seeds, from one end of the canal to the other.

On cutting into the corpus spongiosum penis, this structure exhibited purulent deposits, large, and dispersed abundantly throughout its substance. The prostatic and vesical plexus of veins had evidently been the first part of the vascular system affected by this purulent contamination, for some of the component vessels were large, and contained half-coagulated blood; others had their coats thickened, were patulous, and had evidently held pus.

The case which I have just related to you, gentlemen, brings before us a disputed point in surgery, one which has been the subject of discussions for some years past. It is this, whether the operation of perinæal section as proposed and performed by Professor Syme, of Edinburgh, for the cure of certain forms of permanent stricture of the urethra, should be admitted as an established practice, or should on the other hand be banished altogether from the domain of surgery? This *questio vexata* has been disputed with extraordinary vivacity—sometimes, I regret to say, with passion, between the partisans and the opponents of Mr. Syme's operation; and the prolonged discussion has, as often occurs under such circumstances, only rendered each party more obstinate and exclusive in its opinions; it therefore seems to me that I may occupy your time usefully with a calm, and, I trust, unprejudiced, examination of this question. When engaged in practice in after life, you will inevitably be called on to treat many cases of stricture; you will often meet with some which resist the usual modes of treatment, while their urgent nature imperatively requires relief; you will ask yourselves "What is to be done in such cases?" and it is the principal duty of your teacher to lay down such principles as shall enable you, if not to cure the disease, at least to satisfy your conscience by having done all which the powers of surgery enable you to effect for its alleviation.

Before arriving at the question of perinæal section, it may be well to offer a few remarks on strictures and their treatment in general. Stricture of the urethra, as the word implies, is a narrowing or contraction of the canal at some point; but the cases to which stricture, in the sense I now use it, applies, are those in which the preternatural diminution of the calibre of the canal depends on organic change in its walls or in the subjacent tissues. It is thus distinguished from obstructions produced by tumours, scrofulous deposits, abscesses, &c. The contraction of the canal may be either temporary or permanent; that is to say, spasmodic or organic. I have now to deal with the latter kind only. It arises in all cases, I believe, from more or less inflammation of the mucous or submucous tissues of the urethra at certain points. In many cases of stricture, particularly those of recent date, the mucous membrane of the urethra is alone involved. It is injected, has become thicker than natural, is more dense, and has lost its normal elasticity. It is probable that more or less congestion of the submucous tissues exist to a slight degree, but this has disappeared after death. In more chronic cases the subjacent structures are also involved; and here the mucous membrane of the affected part may sometimes present so much of a natural appearance as to lead one to imagine that it had never been attacked by the inflammatory process. It is, however, presumed that the inflammation has extended from the mucous to the subjacent tissues, and that, as the latter became affected, the former regained its natural aspect from the subsidence of the inflammation. You are not, however, to consider that the organic changes which take place in stricture are confined to the mucous lining of the urethra. In the vast majority of cases of permanent stricture which has continued for any length of time, chronic inflammation has extended to the tissues surrounding the parts primarily affected, and has produced a series of changes which it is of great importance that you should be familiar with. These changes materially affect the treatment that ought to be adopted for the relief of stricture, and, as you will presently perceive, they bear an important relation to the question of perinæal section. They have been too much overlooked by the majority of surgeons who have written on stricture of the urethra; but they were not overlooked by him to whom modern surgery owes so much—I allude to John Hunter. In his admirable collection you will find the pathological effects of stricture illustrated in every form and degree, from the most simple to the most complicated cases; and you cannot spend a few hours better than in an attentive examination of them.

The most usual form of change in the extra-urethral parts is chronic inflammation of the tissues immediately subjacent to the points of the canal in which the stricture was primarily formed. These tissues become more or less hypertrophied; the interstices are filled with coagulable lymph; and as this becomes gradually organized, the tissue is converted into a dense fibrous substance of great resisting power. Sometimes the tissue becomes uniformly dense and callous. In many other old cases the mucous and submucous tissues are confounded together into a hard compact mass in which no distinction of tissue can be traced; the spongy tissue has been involved, and forms a hard, thick wall round the canal, pressing it so closely that hardly a drop of urine can pass outwards, or the finest bougie be introduced into the bladder. Sometimes a very large extent of the corpus spongiosum is converted into a ligamentous substance; in other cases the induration is fibrous; these latter usually occur in the neighbourhood of the bulb, and are extremely obstinate against dilatation. These long and hard indurations are often so prominent that they can be distinguished by pressure on the perinæum. I have insisted at some length on these pathological changes, because it is necessary for you to remember that stricture is hardly ever, in old cases at least, confined to the mucous wall of the urethra, and because a knowledge of those changes will better enable you to appreciate the various modes of treatment which have been proposed for the cure of stricture.

But the immediate and proximate effects of stricture on the neighbouring tissues are not the only ones we have to consider. It will be impossible for you to pass any correct judgment on the relative value of different curative methods, without having some idea of the various changes which follow consecutively on stricture of the urethra. The slightest contraction of the canal may give rise to a number of secondary effects; while those resulting from long-standing or severe stricture are of the most formidable nature, and often terminate in death. All these secondary effects are more or less connected with the obstacle opposed by the contraction to the free discharge of urine. One of the earliest and most common is inflammation of the urethra, behind the constricted point. This inflammation may be of various degrees: when of long standing, it may give rise to ulceration of the walls of the canal, or the deposition of numerous small abscesses in its substance; when carried still further, where the stricture is so contracted as to produce from time to time complete retention of urine, the consequences are dreadful. The membranous portion becomes dilated and irritated by the contact of urine highly charged with salts, and driven against it with extreme violence during the efforts to make water. The inflammation extends to the deep-seated tissues; the walls of the urethra may give way from laceration, or ulceration; the urine becomes extravasated into the cellular tissue of the perinæum, threatening the life of the patient; and if, by prompt and decisive measures, this be preserved, fistulous openings in that part, with all their well-known consequences, may be established. In other cases, particularly when no artificial exit for the urine exists, inflammation involves the prostate gland, giving rise to hypertrophy or abscess in the substance of that organ. The bladder itself is often attacked with chronic cystitis; its walls become thickened; pus is secreted; the inflammation extends to the ureters; and, finally, the kidneys themselves become involved. It is unnecessary for me to enumerate the constitutional symptoms which accompany such a state of things. Even where the secondary lesions are less severe, the patient always suffers more or less in his general health; he is subject to frequent rigors, with febrile accesses; he loses flesh, and becomes irritable; the digestive organs become disordered; the constant dribbling of water renders him an object of disgust to himself and others, while the constant desire to pass his urine prevents him from enjoying a single night's sleep. In short, it is difficult to conceive a more distressing state than the one to which so many patients labouring under old stricture are reduced. Hence the desire which they generally express to be relieved of their disease at any risk.

Stricture of the urethra is most frequently met with at the anterior part of the membranous portion of the urethra, or in the spongy portion. It sometimes happens that both parts are affected at the same time; and authors speak of as many as six, seven, or eight strictures in the same individual. In such cases, the canal may become tortuous, and almost obliterated at several points; and the same effect may arise from long indurated stricture in the spongy portion of the urethra. Mr. Syme denies that any stricture is ever "truly impermeable." But this is a serious error; into which M. Amussat has likewise fallen. Even if we lay aside the cases in which some of the most distinguished and dexterous surgeons in this and other countries have failed to pass any kind of instrument after repeated efforts, we have proof, from post-mortem examination, of the complete impermeability of the urethra. In Chopart's work on the Urinary Organs (page 323,) you will find an example of complete obliteration of an inch of the canal, observed in a dead body. M. Delmas observed a similar fact at the Hôtel Dieu. M. Cruveilhier relates another in his "Pathological Anatomy." Besides, we can readily understand, from analogy, how an inflamed part of a contractile canal may become totally impermeable, whenever the fluid to which it gives passage in a normal state is turned away into another channel.

Let us now, gentlemen, briefly consider the means usually employed for the treatment of stricture of the urethra. You must have a clear idea of these different methods, of the effects each is intended to produce, and of the cases to which they are respectively applicable, in order to understand why any preference should be given, under certain circumstances, to the perinæal section.

The surgical treatment of stricture may be described under three heads—viz., dilatation, cauterization, and division. I shall not detain you long on either of the former, as I hasten to arrive at division, which more immediately concerns us in connexion with our case.

The treatment of stricture by dilatation has been conducted on very different principles by different surgeons. Sometimes the dilatation is momentary and gradual, the bougie being allowed to remain in for a few minutes at a time, and the size of the instrument gradually increased, until the diameter of the stricture part acquires the same size as that of the rest of the urethra. This method is applicable to a large number of cases, and is the one usually resorted to by the great majority of surgeons in this country.

The second mode of employing dilatation may be called the permanent, for the instrument is allowed to remain constantly in the bladder. The object here is not only to dilate the canal, but by the pressure of the instrument to excite such a change in the vital properties of the parts as shall lead to absorption of the effused coagulable lymph in the subjacent tissues. The cases to which permanent dilatation, either by metallic sounds or the gum-catheter, is most applicable, are, according to Sir Benjamin Brodie—

"1st, cases of old gristly or cartilaginous strictures, which the common bougie is incapable of dilating; 2d, cases complicated with false passages; 3d, cases where the urethra has become irregular in shape; and 4th, (finally,) those in which each introduction of a bougie is followed by rigors or constitutional disturbance."

Some surgeons have not hesitated to employ what I would denominate forcible dilatation in the treatment of stricture. A solid conical bougie, or sound, is forcibly passed, or thought to be passed, by some, through the stricture. No surgeon in this country would think of having recourse to the forcible catheterism of Boyer. Other surgeons have invented ingenious instruments, which open after they have been passed beyond the stricture, and dilate it gradually; and in some cases in this hospital this plan has been adopted with success.

Although the treatment of stricture by dilatation is the one most generally used, and the one, moreover, attended with the most beneficial effects, it is not free from objections. Permanent dilatation of old and firm strictures can seldom be effected without giving rise to more or less irritation and other unpleasant accidents. The instrument may produce little pain at first, but it often becomes intolerable; the passage of urine over the points which it has irritated also excites severe pain; the constitution sympathizes, fever sets in with rigors, &c., and the patient refuses to continue the treatment. Another objection which has been made to the method by dilatation, is, that the relief which it affords is seldom permanent. The patient fancies himself cured as soon as he can make water with comparative facility; but this amelioration is often of short duration. Within a short time after the withdrawal of the bougie, the urethra suddenly contracts, and the difficulty of making water becomes as great as ever. This is a fact familiar to all surgeons. Permanent dilatation seems to act in an unfavourable manner on the sensibility of the canal, which is made to pass suddenly from a state of contraction to one of forced distension; the elasticity of the canal is not restored by it, and the cure is consequently less durable. Finally, dilatation by bougies is inadmissible in certain cases of hard and very irritable stricture of the spongy portion of the urethra—a point to which I shall again refer.

Cauterization of the stricture was employed by the surgeons of the fifteenth century, who considered stricture as consisting in vegetations or fungous growths. Recommended by John Hunter, it has been extensively employed in this country by Mr. Whateley, Sir Everard Home, and Mr. Wade; and in France by Ducamp and Lallemand. The substances employed for cauterization are the nitrate of silver and potassa fusa. They are usually applied to the anterior surface of the stricture by means of a bougie, the extremity or point of which is armed or charged with one of these substances. Some of our best surgeons consider the application of caustic substances to the anterior wall of an impermeable stricture, the extent of which we have no means of ascertaining, as highly dangerous. I do not entertain this fear, having myself used the armed bougie extensively. My difficulty has been the inability to do good in some cases with this agent. Perhaps I might resume the general opinion of the profession in saying, that cauterization is chiefly applicable to ring strictures of the membranous portion of the urethra, accompanied with a tendency to spasm.

We now arrive, gentlemen, at the third general method of treating stricture, I mean that by incision of the strictured part. Here we have a capital distinction to make, according as the incision is made from within outwards, or from without inwards; the former comprising the scarifications and incisions of Mr. Stafford, MM. Amussat, Leroy d'Etiolles, and many others; the latter including the old French operations of "la boutonnière," and Mr. Syme's modern one of the perinæal section. Division of the stricture from within outwards is an operation on which it is not easy to pass a correct judgment, from want of a sufficient number of facts. It is certain that the instruments now employed enable us to perform the section without danger of cutting too far, and one of the great objections against the method is thus obviated. When judiciously employed, it may be of use in some cases of hard and long stricture, situate not very far down in the urethra; but it cannot, for obvious reasons, be applied to strictures which only admit a very small instrument, still less to those that are completely impervious. It remains then to consider the perinæal section, or division of the stricture from without inwards, through an incision of the skin, tissues of the penis, and walls of the urethra.

Before describing the operation of perinæal section, I may say a word or two on its history. Mr. Syme was the first, in this country, who proposed and practised division of the stricture from without inwards, on a grooved instrument, introduced by the orifice of the urethra through the contracted point, and with the idea of curing the stricture itself, not of merely relieving any retention of urine which may be consequent on it; but an operation somewhat similar to this was well known to and often practised by the French surgeons more than one hundred years ago. In Dessault's treatise on Disease of the Urinary Organs, edited by Bichât (t. iii. p. 330,) I find the following passage: Speaking of the boutonnière, or button-hole incision of the urethra, Dessault says, "On ne suit pas toujours le même procédé en pratiquant la boutonnière sur le canal de l'urétère. Lorsque l'on peut introduire un cathéter dans la vessie, on se sert de cet instrument pour faire sur sa cannelure l'incision du canal et conduire une gorgeret. Ici l'opération ne presente pas plus de difficulté ni de danger que l'incision pour la taille au grand appareil. Mais aussi elle n'offre aucun avantage dans le traitement des rétentions d'urine; car, puisque on a pu introduire un cathéter, il eût été également possible de passer une sonde, qui eût servi à l'évacuation de l'urine et rétabli par son séjour la liberté du canal."

This passage clearly proves that the old operation of "la boutonnière" was sometimes performed, not only by passing down a grooved director to the anterior edge of the stricture, but also by passing the instrument *through* the strictured point into the canal. This latter manœuvre executed, the perinæum was divided and the stricture slit open on the director.

The operation alluded to by Dessault is supposed by some to have been merely employed for the relief of retention of urine, and not as a remedy for stricture of the urethra. This is an error; for on consulting Dessault in the original, at page 245 of his work, where he treats of stricture, and not of retention, I find the following words:—"L'opération connue sous le nom de la boutonnière, quoique en apparance mieux adaptée à la nature de la maladie, est presque toujours ou inutile ou dangereuse. Elle est inutile, si pour la pratiquer on peut passer un cathéter, ou une sonde cannulée; puisque alors on aurait pu de même y porter une sonde creuse: Elle est dangereuse, si l'on ne peut être guidé par ces instruments; puisque alors on fait les incisions au hazard, et que l'on peut manquer le canal, et diviser des parties dont la lésion est suivie d'accidents plus ou moins graves. Les caustiques recommandés par Hunter nous paraissent tout à la fois incertains dans leurs effects et très dangereuses dans leur suite."

"The operation known under the name of boutonnière, though apparently better adapted to the nature of the disease, is almost always either useless or dangerous. It is useless, if the surgeon has been able to pass a grooved director, for the purpose of operating; because, in such a case, he might just as well introduce a hollow sound. It is dangerous, if the surgeon has no director to guide him; for then he makes his incisions at hazard, may miss the canal, and divide parts the lesion of which is followed by more or less serious accidents. The caustics recommended by Hunter, appear to me both uncertain in their effects, and very dangerous in their consequences."

Again, Chopart distinctly speaks of the boutonnière, or a mode of operating for stricture, independently of retention of urine. At p. 310, vol. ii. of his work on the Urinary Organs, he says:—"The indurations and callosities of the walls of the urethra, the bridles and cicatrices of this canal, form the chronic and permanent strictures which most frequently oppose the passage of the catheter." He then discusses the treatment of stricture, by bougies, caustics, &c.; and at p. 313, speaks of the boutonnière as a mode of treatment, giving a case in which he tried it, but failed. I mention these facts in no way to detract from Mr. Syme's merit, but to show that the operation had been previously entertained by the French surgeons.

As far as I have been able to make out, the boutonnière was performed in three ways. The first is that noticed by Dessault, and identical with Mr. Syme's operation. In the second mode a grooved director was passed down to the impermeable stricture and pressed close against its anterior surface; the surgeon now cuts down through the perinæum on the director, and when he has arrived at the groove he continues his incision forward through the stricture until he has divided it through its whole length and is able to pass a catheter into the bladder. The third method of performing the boutonnière is the one now, I believe, generally adopted by the French surgeons. A grooved director is passed down to the anterior surface of the stricture, as in the former method, and there firmly held by an assistant. The surgeon now cuts down on the membranous portion of the urethra, which he opens, and passes a curved director from behind forwards, holding its point as much as possible in the same line as that of the instrument introduced through the orifice of the urethra. In the majority of cases, the instruments would come very nearly in contact, and serve as a guide to the incisions made through the stricture. It may be objected that it is a difficult matter to cut down on the membranous portion of the urethra without any guide, but the surgeon who has a competent knowledge of anatomy cannot find much difficulty in the operation, and without a knowledge of anatomy he has no business to practice the operative part of the profession. This is the operation recommended by Mr. Guthrie in his lectures on stricture, recently published.

I must now describe to you Mr. Syme's operation, or the perinæal section, and I will employ his own words. The patient having been placed under the influence of chloroform, is "brought to the edge of his bed, and his limbs are supported by two assistants, one on each side. A grooved director, slightly curved, and small enough to pass readily through the stricture, is next introduced, and confided to one of the assistants. The surgeon, sitting, or kneeling on one knee, now makes an incision in the middle line of the perinæum or penis, wherever the stricture is seated. It should be an inch or an inch and a half in length, and extend through the integuments, together with the subjacent textures exterior to the urethra. The operator then taking the handle of the director in his left hand, and a small straight bistoury in his right, feels, with his forefinger guarding the blade, for the director, and pushes the point into the groove behind, or on the bladder side of the stricture, runs the knife forwards, so as to divide the whole of the thickened texture at the contracted part of the canal, and withdraws the director," A silver catheter is now allowed to remain in the bladder for forty-eight hours, after which it is to be withdrawn. After eight or ten days a moderate-sized bougie should be passed, and its introduction repeated once every week or fortnight for two months. Mr. Syme makes it an indispensable condition of his operation, that the stricture should be permeable; in other words, should admit the passage of an extremely small director at least; and in order apparently not to limit the usefulness of his operation, he asserts that there is no truly impermeable stricture. He also condemns, in unmeasured terms, the old operation of cutting into the perinæum in search of the obstructed canal, without any further guide than the point of a catheter, introduced, not through, but merely down to the contracted point.

I shall now endeavour to explain to you on what principles it appears to me that the operation of perinæal section, in its most extended sense, should be adopted. To my mind, the term perinæal section should be applied to an operation in which the strictured part of the urethra is divided from without inwards, no matter whether the surgeon has been able to pass a director or not, or whether he carries his incision of the stricture from before backwards, or from behind forwards. These latter circumstances merely affect the safety and facility of the operation, without in any way altering the principles on which it is conducted. You will now naturally ask me what are these principles? You may desire to be informed, whether, as some distinguished surgeons affirm, the perinæal section should be banished altogether from the practice of surgery? or to know, admitting its usefulness, in what cases, and under what circumstances, you may be justified in having recourse to the operation? These points I shall now endeavour to clear up, though with a certain degree of diffidence; for I must confess to you, from the outset, that the profession is greatly divided on the subject. We must not, however, forget the old adage, "Doctors differ." Few important improvements have ever taken place in surgery without exciting much discussion and giving rise to considerable diversity of opinion. It has taken more than two hundred years to bring lithotomy to its present degree of perfection. I remember, myself, when lithotrity was condemned as an inefficient or even dangerous proceeding; and to come nearer home, consider how much the profession has been divided, ever since the days of John Hunter, on the utility of caustic for the treatment of stricture.

As for the perinæal section, I am one of those surgeons who consider it for the most part easy of performance, exempt from any considerable danger inherent to the operation itself, and highly effectual for the relief of such cases as it is adopted to. It therefore remains for me to explain what these cases are; under what circumstances I think the surgeon may have recourse with advantage to the perinæal division of a strictured urethra.

I am disposed to recognise two sets of cases in which the perinæal section may be employed. The first set, where no instrument can be passed through the stricture. Mr. Syme, as I informed you, rejects all such cases, but I shall presently give my reasons for dissenting from him. The second class, where a curved director can be introduced into the bladder; and here Mr. Syme's operation, properly so called, is undoubtedly the most safe, easy, and effectual proceeding that can be adopted. But this distinction of permeable and impermeable strictures is not enough. We must go further, and endeavour to determine what circumstances in each class should determine the surgeon to select external division of the stricture in preference to the other modes of treatment generally employed. Let us first consider impermeable stricture; and here, to avoid repetition, I would beg of you to recall to mind what I have already said on the changes produced by long-standing stricture in the tissues of the urethra, or subjacent parts; in the prostate, bladder, or kidneys; and on the general health and comfort of the individual.

Here is a case of old stricture of the urethra. The walls of the urethra are thickened and cartilaginous; you can feel the cord in the perinæum. After many attacks of retention of urine, complete stoppage takes place; the patient suffers from the effects of that distressing occurrence; no instrument of any kind can be passed into the bladder; yet it is imperative to afford relief, or your patient will die. What is the surgeon to do in such a case? Many will answer: Puncture the bladder through the rectum, perinæum, or above the pubis, and then proceed to treat the stricture. But the circumstances of the case may, as Mr. Bransby Cooper has justly observed, lead you to conclude that the fibrous and hardened textures will not yield to other modes of treatment, after the relief of the retention by puncture, but that the stricture will rather make progress, and tend to permanent obliteration of the canal. Dilatation is here out of the question, since no instrument can be passed. There is no time for the use of caustics, even if their employment were suited to the case under other circumstances; and I cannot but think that the perinæal section or boutonnière, performed either according to the first, or perhaps better still, the third method, is the best operation that can be employed, not only for the relief but for the cure of your patient.

In other cases, instead of retention of urine, we have laceration or ulceration of the urethra, with extravasation of urine and fistula in perinæo. These accidents may have continued for a considerable time before you see the patient. It is impossible to pass an instrument; and you have reason to conclude that a large portion of the spongy tissue is reduced to a gristly cord. The advocates of caustic confess that they will probably fail to effect any benefit in cases of this kind; dilatation by bougies, or internal scarification, or division, is out of the question. Must the patient be abandoned to his fate? Does surgery hold out no hope of relief?

For the fistulous openings, all surgeons are agreed that they should be freely divided; and experience proves that the stricture may be divided at the same time by an incision carried forwards from the membranous portion of the urethra. Mr. Bransby Cooper has related two cases from his private practice, in which the operation was perfectly successful; and it may be safely affirmed that no other method would have been attended with such speedy and effectual relief.

What I have just said will apply equally to cases of impermeable and cartilaginous stricture occupying a considerable portion of the canal, but accompanied by constant dribbling of water, instead of retention. Although no instrument can be passed, the urine comes away in drops, and after violent efforts. Such cases often present themselves in practice.

The following case is an illustration of this form of the disease, and of the advantages of the operation for it:—William J——, aged forty-four, was admitted into St. Mary's Hospital October 13. He had been the subject of stricture eight years. At the commencement of 1849 he was seized with retention of urine, and has suffered from it occasionally ever since. At the time of his admission he passed his urine in a very fine stream, or only drop by drop. A firm obstruction existed five inches down the urethra, through which no instrument could be passed; just anterior to this there was a false passage. On the 15th of October I divided the stricture through the perinæum; a grooved staff was introduced down to the stricture, and the urethra opened for an inch and a half just above it. The stricture was then divided, and the staff readily entered the bladder. This was withdrawn, and a No. 8 silver catheter introduced, and retained in the bladder forty-eight hours. There was a good deal of bleeding after the operation, but it stopped in the evening. A No. 8 silver catheter was introduced every third day whilst he remained in the hospital, and retained half an hour at each introduction. The patient had not had a single bad symptom; the wound healed readily, and the patient was discharged at the end of five weeks. I saw the patient two or three months after, and the largest-sized catheter could be easily passed into the bladder.

You will observe that the operation here performed was not Mr. Syme's, properly speaking, but the old boutonnière. Mr. Syme rejects it altogether from practice, on the ground of its establishing an imperfect course, constantly disposed to contract, and inconvenient from its tortuous direction, and from the immediate hazard of failure in passing the catheter into the bladder. The operation, such as it is often performed here, is certainly more difficult than Mr. Syme's, and it may occasionally fail; but I would observe that, in the numerous operations for impermeable stricture by external incision, performed by Mr. Fergusson, Mr. B. Cooper, myself, and others, no serious difficulty—none the surgeon was unable to overcome—has as yet presented itself. Such a case might, however, occur: Chopart relates a remarkable one: but they are rare. Besides, I would again ask, what is the surgeon to do with such cases? He must either leave his patient to be worn out by a lingering and most painful disease, or he must make some attempt for his relief. The use of caustic potass is the only other alternative left; but the advocates of potass confess that it is not applicable to the cases now under consideration; and hence the boutonnière should, in my opinion, be had recourse to. In fact, nothing else is left for us to do. It seems, indeed, strange that Mr. Syme should reject the operation for cases in which it is the only possible remedy, yet adopt it, with a slight modification, for others, when, the urethra being permeable, it might be alleged that cautious dilatation would afford great relief, if not effect a cure. The only valid objection against the operation is the difficulty of sometimes performing it, because we have no steady guide for the cutting instrument; but in these complicated cases much of the difficulty may be got over by employing the third species of boutonnière, which I have described.

We now come, gentlemen, to Mr Syme's operation for permeable stricture. No one pretends that this operation should be applied to the treatment of stricture indiscriminately. We have, therefore, to inquire under what circumstances the surgeon is justified in having recourse to it; for many of its opponents admit that it may be sometimes indispensable. Mr. Wade, acknowledges that Mr. Syme's operation is applicable to cases "where much induration of the corpus spongiosum exists; for dilatation would only excite and increase the contraction, and we cannot hope to relieve the induration entirely by caustics." Mr. Wade would likewise extend the applicability of perinæal section to some cases from mechanical injury of the urethra, where we have a hard gristly cicatrix, with perhaps fistulæ in the perinæum; also to cases where the urethra has been lacerated, and a hard cicatrix has formed in the seat of the injury. Finally, cases of hard, contractile stricture, not the result of mechanical injury, which have resisted all other means of a milder nature, and where the powers of the patient are suffering considerably—here, according to Mr. Wade, perinæal section may be required. This, you perceive, gentlemen, gives us a pretty wide field.

The cases for relief of which Mr. Syme originally proposed his operation are "those vexatious ones in which the constricted canal is unyielding, and manifests a constant tendency to contract, perhaps even more closely than before, after being partially or completely dilated." In these cases the constitution is much disposed to sympathize with every change in the local disease; rigors and febrile attacks often occur on every attempt to pass a bougie, and what have been called "milder methods" of treatment almost invariably fail to afford anything like permanent relief. This peculiarity of old strictures has been noticed by all surgeons. M. Civiale, to whom we owe so much for the diagnosis and treatment of urinary diseases, observes that the fibrous and indurated stricture which exists near the bulb of the urethra is extremely obstinate against every attempt at dilatation; and again, that when the stricture occupies a great extent of the spongy portion, is hard, and when the canal is much reduced in calibre, cauterization must be rejected, and dilatation is, for the most part, insufficient to produce a cure. The same distinguished surgeon likewise insists "that nearly all old strictures of the spongy portion of the urethra are so dense, so resisting, and have such a tendency to contract, that dilatation has little effect upon them, while cauterization only seems to increase the state of irritability." You may, perhaps, obtain an explanation of these facts by remembering what I have said on the changes which the corpus spongiosum and subjacent mucous tissues so often undergo in old and severe strictures. In many cases of fibrous stricture the parts surrounding the contracted canal are converted into ligamentous tissue of a highly contractile nature; and unless the tissue be carefully divided through, every attempt to cure by dilating or cauterizing will not only fail, but increase the disposition to contract, and prolong the treatment while it aggravates the disease.

But there is one species of stricture—the form, indeed, under which my patient laboured—which has not been described apart by writers, although it is the one above all to which Mr. Syme's operation is applicable: I now allude to traumatic stricture. Here the complaint arises from some mechanical injury—falls, blows, &c.—to the perinæum, and it is at once the most severe and refractory form which the surgeon can meet. The case of complete obliteration of the canal, recorded by Cruveilhier, to which I have already alluded, was one of this kind; and although the urine dribbled away during life, the most careful dissection was unable to detect any trace of canal in the dense fibrous cord which constituted the stricture.

Traumatic stricture is often developed immediately after the receipt of the injury, but in other cases the contraction does not take place until many years afterwards. In my case, the patient had been struck by an iron bar eight years ago. M. Civiale relates another, where the characteristic symptoms of stricture did not appear until ten years after the injury. From the nature of the exciting cause you can readily understand how such strictures are often of considerable extent: authors mention several inches, but this is rare. However, it is certain that contractions of the urethra, from mechanical injury, are generally long; they are also hard. Another peculiarity of traumatic stricture, is its extreme tendency to contract. Even in cases where a bougie can be borne, and temporary improvement results, experience abundantly proves that the cure is far from being complete, for the contraction returns, and sometimes with remarkable rapidity.

In severe cases, as I have observed before, a considerable portion of the canal is contracted, and if to this state we join hardness, tenseness, and fibrous adhesion between the mucous membrane of the urethra and its subjacent tissues, you have a form of disease which defies all the modes of treatment hitherto employed.

"In such cases (says M. Civiale) even should a dexterous hand succeed in introducing a small sound, we must not count on obtaining a cure, no matter what treatment we employ, whether it be dilatation, cauterization, or incision (internal.) I have seen every method of treatment fail, though continued for a long time and conducted with the utmost prudence."

Here then is the testimony of an impartial witness. Such cases of stricture are incurable by ordinary means. Must we abandon our patient? Does surgery afford no hope of relief? I think it does. It is in such cases, especially, that I would recommend Mr. Syme's operation. I shall briefly mention one of the cases in which I had recourse to it.

The case was that of an impartial, aged 58, who had laboured under stricture for nearly thirty years. It had been divided by the lanceted stilette, and periodically dilated; but during the last two years it had become so much contracted as not to admit a No. 1 bougie. The water came away only drop by drop, and at times retention occurred, which was always relieved by the application of the potassa fusa. Mr. Syme's smallest grooved staff was passed, and an incision an inch and a half in length was made, commencing from close to the scrotum, and carried down towards the anus. The groove of the staff was at once reached, and the stricture divided. A No. 8 silver catheter was introduced, and a considerable quantity of fœtid, alkaline urine was discharged. There was a little bleeding in the night, which was easily stopped by pressure. The catheter was retained in the urethra forty-eight hours, and introduced every third day for a fortnight, when the patient was enabled to resume his duties. At the present time the largest catheter (No. 10) which the orifice of the urethra will admit, passes readily into the bladder.

Mr. Syme's operation, gentlemen, is, as you perceive, both easy and safe, so far as the operation itself is concerned. Whatever difficulties the surgeon may experience in endeavoring to divide an impermeable stricture, there are none here. He cannot meet with any obstacle to cutting down on the groove of the director, or dividing the strictured parts, however dense or extensive the constriction may be; for the groove of the staff is a safe and easy guide, which will enable even the young surgeon to operate with comparative facility.

But various objections have been raised against the operation both as regards its principle and its effects. These I shall notice. Many surgeons criticize Mr. Syme's operation on the pretext that it has been proposed as a system of treatment for stricture in general; but this is an unfair statement of the case. Neither Mr. Syme, nor any advocate of his operation with whom I am acquainted, ever proposed perinæal section as a general system. On the contrary, it has been expressly stated, over and over again, that division of the stricture from without inwards, should be confined to such cases as are not amenable to ordinary treatment; where the tendency to contract is so great as to leave no hope of cure from dilatation; where the irritability of the urethra is so excessive as to render the repeated introduction of bougies not only insupportable from pain, but dangerous from the constitutional disturbance they excite. Such cases frequently occur, and we might fairly ask those who reject Mr. Syme's operation unconditionally, what other mode of treatment they would recommend under such circumstances.

Dilatation is inadmissible; cauterization is also inapplicable in many of these cases, from the seat, extent, and nature of the stricture. You must, therefore, either divide the strictured parts, or wait; and if you wait too long, the continued and increasing impediment to the discharge of urine will, in nine cases out of ten, reduce your patient to a state of insupportable distress, if not irremediably compromise his existence by the secondary effects produced on the prostate, bladder, kidneys, and general health.

The next objection offered to division of the stricture, is, its insufficiency to effect a radical cure; after some months, or years, it is said, the disease returns as bad as ever. We have not yet sufficient experience of Mr. Syme's operation to decide this point in a positive manner. Relapses may and do occur. The operation is not infallible, but I think I may safely say, that relapses are not so frequent as after other methods of treatment; and this may be rationally explained by the fact that the new tissue which unites the edges of the divided stricture, does not partake of its fibrous or ligamentous nature. It has been said, again, that the thickened and diseased tissues are merely divided by the knife, but not removed, and hence, that the operation is inferior to dilatation or cauterization. This is an unfair way of putting the matter. We acknowledge that bougies should be employed whenever their use holds out any reasonable prospect of success; but the perinæal section is not proposed as a substitution for dilatation: we have recourse to it in cases where the bougie cannot be used, or where the patient is unable to bear its introduction. I have already alluded to this latter point. In one of Mr. Fergusson's cases, every attempt to pass a bougie was followed by attacks of shivering, so violent that they might be easily mistaken for intermittent fever; and although such attacks often subside without any further disorder, they are, in other cases, the forerunners of fatal mischief. They are not confined to stricture, but are often observed in connexion with calculus, and the introduction of instruments into the urethra.

M. Civiale relates a very remarkable example in his last work on Calculous Diseases. The patient had occasional attacks, which were mistaken for ague by his medical attendants, and treated with quinine. An instrument was passed into the bladder, for the purpose of ascertaining whether the rigors and fever, &c., did not depend on stone. This simple operation produced still more violent rigors, which resisted every kind of treatment; the patient died, and, after death, purulent affection was found to have been the cause; the kidneys, as in my case, were filled with purulent deposits.

As to the objection drawn from the circumstance that the new passage is made through diseased tissues, I would simply remark, that if any passage at all is to be established, it must necessarily be formed in part by these tissues. We know of no method by which they can be removed completely; for no one pretends that caustic potass can be used—if indeed it be used at all —in such a way as to remove the whole of an extensive and cartilaginous stricture, consequent on injury to the perinæum.

Finally, gentlemen, it has been stated, as a reason for rejecting the perinæal section altogether, that it is a dangerous operation, often attended with hæmorrhage, and sometimes followed by death.

This is a point which merits serious consideration; for it must be confessed that external division of a stricture, even when performed with facility on subjects apparently free from internal disease, has sometimes given rise to a fatal result.

Mr. Bransby Cooper has lost a patient; Mr. Fergusson has had the misfortune to lose two or three; Mr. Gay lost one patient; Mr. Cock of Guy's Hospital had one fatal case, from purulent infection: and the subject of the case on which I now lecture, was cut off by the same accident, supervening on the operation.

I have not had sufficient time to read all the medical journals, and extract from them all the cases of perinæal section which have been published within the last three years; but I have been able to collect forty. Of these, sixteen were published within the last three years; but I have cases of impermeable stricture, in which the boutonnière was performed; and in twenty-four, Mr. Syme's operation, properly so called, was practised. Of the former sixteen cases, eleven were cured and five died; of the latter twenty-four cases, twenty were cured and four died. At first sight this gives us a mortality of ten in forty cases; but we must abstract those cases of death which cannot fairly be attributed to the operation per se.

With this correction, I find that, in the first class, two patients may be said to have died from the operation; and in the second class, three likewise. The causes of death were, hæmorrhage, constitutional disturbance, sinking of the powers of life, erysipelas, and purulent infection. The only causes, however, which can be attributed to the operation, were hæmorrhage, which occurred in one case, and constitutional disturbance or sinking, which supervened in three. These statistics are probably very imperfect. I merely bring them forward to show that the operation of perinæal section may occasionally prove fatal. Hæmorrhage may occur, especially when the bulbous portion of the urethra has been freely divided; the patient may sink from the shock of the operation; or this latter may develop a series of secondary accidents which may carry him off.

As far as our present experience goes, hæmorrhage and constitutional disturbance of a severe form are the only two accidents which appear to be inherent to the operation. If the patient's health has been reduced to a very unfavourable state by local disease or its effects—if he be attacked by erysipelas, by purulent injection, or other accidents of a similar kind, after the operation—it is altogether unfair to attribute any fatal result which may arise to the treatment that has been adopted. Thus, to recur to my own case, and to the one related by Mr. Cock, in both of which phlebitis with purulent infection supervened and caused death, how can the accident be necessarily connected with the operative process, especially if you remember some of the examples I related to you in my last lecture, of purulent infection being induced by the simple use of a bougie? Tetanus, as you know, may likewise occur after trifling operations; it has followed the extraction of a tooth: yet who would think of rejecting the operation because of the accident? In like manner, erysipelas, hospital gangrene, &c., may set in after a trifling operation and carry off your patient. These are facts familiar to every one; and nothing but the most determined prejudice could induce certain persons to reject an operation because it may possibly be followed by secondary effects, which no surgical foresight can prevent or avoid. Such a mode of reasoning is at once unscientific and disingenuous. If it were admitted, the progress of surgery must be arrested at once. I do not mean to affirm that you are to undertake rashly every operation which may be proposed; but, on the other hand, you are not to reject, without weighty reasons, a mode of treatment which has been followed by the most beneficial results in the hands of our most distinguished surgeons.

In cases of old and obstinate stricture, which have resisted all other methods of treatment, and where the health of the patient is about to give way, you are bound to ask yourselves, Shall we allow the disease to progress until it becomes irremediable, entailing misery on the patient, endangering his life, and probably rendering another operation, (puncture of the bladder) ultimately necessary under unfavourable circumstances; or shall we attempt to relieve and cure the patient by a simple operation, which holds out every prospect of success? I would unhesitatingly answer in the affirmative. When extensive practice shall have made you acquainted with the effects of severe stricture, you will be better prepared to understand the impolicy of allowing things to go too far—of delaying until relief becomes impossible. In the case before us, I have no doubt but that the complication which proved fatal, may be mainly attributed to the condition of the urethra, produced either by the original disease, or the treatment employed before the operation. The whole surface of the urethra in front of the stricture was inflamed, and contained numerous abscesses; and, from the general history of purulent infection, we know that the presence of n abscess in any part of the genito-urinary system is a determining cause of purulent infection after operations performed on the bladder or urethra. In my next lecture I shall enter on the subject of Lithotrity.

Lettsomian Lectures.

No. I.

THE PSYCHOLOGICAL CHARACTER OF THE PHYSICIAN.

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(*Continued from August No. p. 95.*)

From the annals of empiricism, the psychological physician may deduce many useful lessons to guide him in the practical application of mental therapeutics. "*Fas est et ab hoste doceri*," is a maxim applicable to medical, as it is to moral and political science. May not the success which sometimes follows the administration of an extravagantly eulogized nostrum often depend upon the moral confidence inspired in its much-vaunted efficacy? The medicine cures, because the patient *believes that it will cure*—is unerring in its effects—infallible in its results. Let us learn a lesson from this fact, and remember the observation of Coleridge, that "he is the best physician who is the most ingenious inspirer of hope." How often has a disease which has baffled the skill of the scientific, practical man, vanished before the spell of a village witch. A patient afflicted with a malady which refused to yield to the demands of legitimate medicine, surrendered himself into the hands of a notorious quack. A friend endeavoured to rescue him from the grasp of the charlatan. He saw the daily fee accompanying the daily deceit, and expostulated; when the patient exclaimed, "For God's sake destroy not the hopes that man holds out to me: upon them I live; without them I die." In acute attacks of disease, the patient who has the least fear of dying has, *cæteris paribus*, the fairest prospect of recovery. The tonic and often stimulating influence of HOPE invigorates the system, and wards off the approach of disease. Aretæus, appreciating the importance of rousing and supporting, by means of moral agents, the nervous system, when in a state of depression and debility, expressly counsels the patient to be of good heart, and advises the physician to entertain him with agreeable conversation, and to do his utmost to encourage hope and confidence. With a view of abstracting the mind of the patient from a contemplation of his own sufferings, he directs that his mind should be diverted with the sight of plants in full bloom, and agreeable paintings; and suggests that the bed of the patient should be placed near a window commanding a beautiful prospect. The chamber, he says, should be strewed with flowers; amusing books should be read; and the soothing influences of music should be brought to bear upon the moral treatment of the case. The mind of the patient should not be permitted to dwell upon his physical malady; and he should be constantly buoyed up with the hope of recovery. When speaking of the plague of Athens, Thucydides says that "the most affecting circumstance connected with the epidemic was the great and fearful mental dejection which accompanied the attack. The mind appeared at once to sink into despair, and the patient often gave himself up without a struggle." We all fully appreciate the potency of mental depression among the predisposing causes of contagious disease. During the prevalence of general epidemic diseases, it may be a matter worthy of consideration whether there are not some powerful MORAL REMEDIES, by means of which epidemics may be shorn of much of their virulence. It is a question entitled to serious discussion, what are the best means within our reach to effect so desirable an object? Many may smile at the idea of attempting, by any mental measures, to create a revulsion in the public mind, and thus to destroy, if possible, all fear and apprehension. When Rome was threatened with pestilence, the public authorities marched in solemn procession to the national temple, and means were adopted for appeasing the anger of the gods. The psychological effect of this, to our minds, superstitious proceeding, was to allay public apprehension, and to excite hope and confidence. May not we adopt measures somewhat analogous to arrive at similar results? Have we not within our power effectual means of acting upon the public mind *en masse*, for creating, during the existence of those fearful panics which so often accompany the prevalence of pestilential diseases, a new turn to the current of thought, and of dispelling unnecessary fears and morbid apprehensions? God has so intimately associated the spiritual with the material portion of our organization, that He will not consider that we are slighting His dispensations, or making light of His awful providence, if, in obedience to His will, and in conformity to the recognised laws influencing the mysterious union of mind and matter, we adopt moral or mental means for curing or preventing disease.

Such being a view of the question sanctioned by religion and science, it behoves us to consider whether some measures might not be adopted for the purpose of abstracting the public mind from its own depressing apprehensions, thus rendering the system less liable to be acted upon by those physical agents alleged to give origin to the disease. This is only suggestive; it may be entirely impracticable; but whether it be so or no, I have not the slightest doubt of the soundness of the *principle*, and of the importance of adopting every legitimate means of allaying any panic that may occur and of looking beyond the more physical means at our disposal for the prevention and cure of disease.

It is our duty, during these fearful epochs, to dismiss from the mind the contemplation of subjects calculated to awaken gloomy apprehensions, to depress the feelings, and exhaust the nervous energy. Every reasonable mode of inducing cheerfulness and serenity should be encouraged. Constant and agreeable occupation will do much good. An effort should be made to excite emotions of a pleasurable character. The exercise of charitable feelings, the determination to keep in abeyance all the corroding passions, such as anger, jealousy, revenge, covetousness, and the effort to cultivate "love, peace, and good-will towards men," will be found of positive advantage in invigorating the *physique*, and thus rendering innocuous the effects of contagion.

We should never forget that those whose vital powers are debilitated are the most susceptible to epidemic maladies.—that the depressing emotions induce this predisposition more certainly than any other cause. A humble reliance on the will of God, a well-sustained piety and cheerfulness, are the safest and most legitimate means (apart from physical agents) of preventing the spread of epidemic maladies. During the prevalence of any such visitation, it is our duty individually, as well as nationally, to fortify and strengthen the system, by resolutely determining not to yield to useless fears and childish apprehensions; and, as far as it is in our power, to inspire ourselves and our neighbours with energy and courage, and, as a powerful prophylactic agent, to cultivate

"Sweet, unanxious quiet for the mind."

To the physician specially occupied in the investigation of the morbid conditions of the mind, how indispensable is a knowledge of mental philosophy! Unless acquainted with the constitution of the human understanding, we are but ill adapted to unravel or appreciate the intricate phenomena of its morbid action, or to apply for their cure or alleviation those medical and moral agents which science has placed within our reach. Before the abnormal mental state can be recognised or estimated, it is necessary for the physician to be intimately conversant with some normal standard of comparison, otherwise he possesses no test by means of which he can arrive at safe results. Who would confide in the judgment of a physician who endeavoured, by means of the stethoscope, to ascertain the nature of any particular disease of the heart and lungs, being ignorant of the normal or healthy action of those organs? Is not a knowledge of the healthy operations of thought as necessary to the physician who is called upon to pronounce whether, in any given case, an apparently suspicious deviation from the normal condition of the mind is or is not the effect of disease?

Should I not be offering an insult to your understandings if I were seriously to endeavour to establish the importance, not only of a knowledge, but of a profound knowledge of the human mind, its affections, its propensities, its emotions, to those specially and personally engaged in the treatment of the insane? Alas! an acquaintance with this section of philosophy is the last that is thought necessary in the education of those specially intended for psychological practice. Hitherto, with few exceptions, those engaged in this branch of the profession have not only been grossly ignorant of the constitution of the human mind, but unacquainted with the first principles of medical science itself. It is only in recent times that it has been considered necessary to ascertain whether parties desiring to undertake the care and cure of the insane have any other qualification to recommend them to the office than the possession of a sufficient amount of capital to enable them to carry into effect the mere commercial speculation.[*] A surgeon, before he undertakes the performance of an operation, or the treatment of a serious, or even of a trifling injury, is expected to have devoted some portion of his time to the study of anatomy and the practice of surgery. A physician is considered to have been educated as such; to have watched at the bed-side the operation of medicine exhibited under given conditions of disease; and to be thoroughly conversant with the science of therapeutics and the phenomena of morbid action. But a knowledge of the most intricate and complicated phenomena with which we have to deal—namely, the faculties of the human mind, is considered to come by intuition, no preparatory education being deemed necessary to those devoted to the treatment of the insane. What would be said to our own mental condition, if we were to place in the hands of a blacksmith, or a civil engineer, a delicate chronometer, for the purpose of having its movements regulated? And should we not expose ourselves to severe animadversion, if we permitted a man ignorant of the elements of anatomy to cut down upon the subclavian artery, for the purpose of applying a ligature to the vessel? Is it less absurd, less to be regretted, and less destructive to the integrity of the intellectual part of our constitution, to place under the care of persons inexcusably ignorant of the elements of the science of mind, a class of cases requiring, above all others, for its judicious and successful management, an intimate knowledge of healthy mental phenomena? "Great powers of reason are requisite," says Vogel, "to understand men destitute of reason." To treat the various phases of disordered mind with any hope of a successful issue, requires, on the part of the psychological physician, qualities of mind rarely seen in combination—tact, presence of mind, judgment, a ready appreciation of intricate morbid mental phenomena, a delicacy of taste, a high *morale*, a steadiness of purpose, elevation of character, great command of temper and volitional power, and resolute determination not to allow any amount of provocation to interfere with that calmness and serenity so indispensably necessary on the part of those brought into immediate association with the insane. If the mind be the instrument upon which we are to operate in carrying out any systematic plan of moral treatment—if it be the duty of the physician to perseveringly combat with delusions and hallucinations, and to substitute for them correct and healthy impressions; to strengthen these impressions by judicious and repeated repetitions; remove perverted trains of reasoning—replace them by correct induction, and give them the power and influence of habit and frequent association: how, I ask, can he make any progress in this mode of treatment as long as he is ignorant of the *material* with which he is to work—in fact, with the faculties of the human understanding? If the man who has the advantage of an ordinary medical education, is by means of his ignorance of the philosophy of mind, obviously unfitted for the serious duties of treating scientifically and successfully its disorders, what language can convey our impression of the folly, the barbarity, and heartlessness of entrusting the management of the insane to those who are not members of the profession at all, and who have enjoyed no more psychological or general education than that derived from their having acted as attendants in asylums, or that which they have received at a village school? Need we feel surprise at the little advance made in the science of mental pathology, and the amount of public odium which has for so many years attached to those specially engaged in this anxious and important branch of practice, when we consider into whose hands this class have unhappily fallen? I trust, however, the day is not very remote, when the psychological physician, engaged in the treatment of insanity, will take his proper and legitimate position in the rank of honourable and scientific men; and the opprobrious epithet with which the vulgar and illiterate assail him will be expunged from the vocabulary. When that epoch arrives, the public and the profession will esteem, respect, and venerate those who, at great and heroic personal sacrifices, (often of health, life, and reason,) devote their acquirements, energies, and talents, for the benefit of this section of the afflicted family of man. "I am at length rewarded," says Müller, "since, after twenty-six years' intercourse with the insane, I have not become insane myself."[*] In a letter to Pinel it is observed, "the labourer in lead-works is thankful if he escapes lameness; and the medical attendant of a madhouse if he does not there leave his reason. A more deliberate sacrifice to the mightiest good of mankind is not conceivable."[†]

There is another practical point connected with the study of medical psychology, which comes within the range of our investigation. It has reference to the influence of the will, the volition, upon the physical organism. It has been maintained that the persistent direction of the volitional power to a particular organ or tissue, will eventually induce a morbid activity in the part, and give rise to organic mischief. In many cases of hypochondriasis, a disease often associated with some form of visceral affection, I have no doubt the sufferings, both mental and physical, are often aggravated in consequence of the patient imagining some particular structure or viscus to be the seat of disease; and from that circumstance, the attention being constantly directed to the organ, actual lesions of structure are induced in the tissue or organic elements of the part. The persistent current of mental impulse, emotion, or volition towards an organ, impels to it an amount of nervous energy sufficient to derange the circulation, and thus interfere with the assimilative functions, and induce organic alterations in the tissue. Does the fact admit of a more psychological explanation? Taking a practical view of the operations of volition, I would ask, whether it is not possible to prevent or cure actual physical and mental disease by an effort of the will; and, if so, what is the rationale of the process? The will, by a constant exercise of its powers, has been known to acquire an influence over the involuntary organs. The case of Colonel Townsend is familiar to us all. This gentleman, by an effort of the will, could easily suspend the action of the heart, and thus induce, for a period, all the symptoms of apparent death. Celsus refers to a priest who exercised the same power over all the vital functions. In the language of Burton, "he could separate himself from his senses when he list, and lie like a dead man, void of life and sense." Great expectations may be entertained of recovery from an attack of illness, if the patient, with a recognition of his duty of submission to the will of God, resolutely determines not unnecessarily to yield to physical disease. The determination to be well, will, in certain morbid states of the system, do much to facilitate recovery, and will materially aid the physician in the exhibition of his curative agents. In many of the disorders of the nervous system, it is often necessary for "the mind to minister to itself." If the patient confess an inability, by an effort of volition, to "pluck from the memory a rooted sorrow," in the more advanced stages of mental disease, he certainly has the power in the earlier or incipient forms to destroy, by a resolute effort of the will, "those false creations of the heat-oppressed brain," and those irregularities of thought and conduct, which, if permitted to run riot and remain uncontrolled, would certainly induce the more serious, dangerous, and perhaps incurable forms of mental derangement. "By endeavouring, from benevolent motives, to smother the expression of our sorrows," says Dr. Reid, "we often mitigate their inward force. If we cannot imbibe the spirit, it is often profitable, as well as a good-natured hypocrisy, to put on the appearance of cheerfulness."

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[*] When asylums for the insane are entrusted exclusively to physicians acquainted with the *anatomy of the human mind*, or, in other words, with the science of *medical psychology*, they will realize the conception of the great Esquirol, and become "instruments of CURE, and, in the hands of the skilful physician, most powerful therapeutic agents against mental maladies."

[*] A. Müller, Physician to the Julius Hospital, Wurzburg.

[†] "Aspects of Medical Life," by Dr. Mackness.

> "By *seeming* gay, we grow to what we seem."

Let us, as psychological physicians, impress upon the minds of those predisposed to attacks of mental aberration and other forms of nervous malady, the important truth, that they have it in their power to crush, by determined, persevering and continuous acts of volition, the "floating atom, the minute embryo, the early scintillations" of insanity. I speak from facts which have come under my own observation, when I declare that many of the diseases of the mind, in thier premonitory stage, admit, under certain favourable conditions, of an easy cure, if the mind has in early life been accustomed to habits of self-control, and the patient is happily gifted with strong *volitional power*, and brings it to bear upon the "scarcely formed filaments of mental disease." "We should have fewer disorders of the mind if we could acquire more power of volition, and endeavour, by our energy, to disperse the clouds which occasionally arise within our own horizon; if we resolutely tore the first threads of the net which gloom and ill-humour may cast around us, and made an effort to drive away the melancholy images of the imagination by incessant occupation."*

It is sometimes necessary, in the exercise of moral influences, to rouse the apprehensions of our patient by pointing out to him his position as an accountable agent. I cannot better illustrate this psychological function of the physician than by quoting an anecdote which has been recorded of Mr. Abernethy. A patient was brought to St. Bartholomew's Hospital, with strangulated hernia. As the symptoms became alarming, the propriety of an operation was suggested to him, but he resolutely refused compliance; and although his alarming situation was fully pointed out, he persisted in his determination. On the following day a consultation was held, and it was agreed that no alternative remained but a speedy death, unless the operation were performed. When this was announced to the sufferer, he exclaimed, —"I will rather die than submit." As the surgeon and pupils were leaving the hospital, Mr. Abernethy entered. The position of the patient was at once explained to him. He immediately went to the bed-side of the man, when the following conversation ensued:—"Well, well, my good fellow," said Abernethy.—"They want," replied the patient, "to persuade me to be operated upon, but I would rather die." "Well," rejoined Mr. Abernethy, "I am sorry the operation is necessary; but have you thought of what there is after death? There is a day of judgment, and you will and must give an account of yourself to God. God has placed within our hands the means to use, and we must use them. If you refuse to use the means God has thus given, and which we think may save your life, you are, in a measure, answerable for your own death, and must account to God for this, with your other sins." The man appeared much impressed with Mr. Abernethy's appeal, and for a period continued silent and in deep thought. Mr. Abernethy said "I will leave you for a few minutes to consider the subject." On returning, the man exclaimed, with great eagerness and decision, "I will submit to any operation that is necessary." The operation was immediately performed, and his life was preserved.†

I have not yet spoken of the conduct of the physician whose special duty it is to attend and officiate at the period of parturition. There are no occasions when it is so essentially necessary for the medical practitioner to zealously watch the operation of moral causes upon the *physique* of his patient. The successful progress of labour is often dependent upon the temperament of the physician. The patient, anxious about her own state, and nervous as to the issue, watches every movement of the physician—his very attitude—his very look—his walk; his remarks, either addressed to herself, or those in the room, are closely scanned, and have a beneficial or a disastrous influence upon the mind of the patient. In proportion as the physician recognises the potency of mental agents upon the mind of the patient, and is facile in their adaption to the idiosyncrasy of those with whom he is brought in contact, will he be successful in the practice of this important section of medical science.

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* Essay on Hypochondriasis, by Dr. Reid. [German Edition.]

† Dr. Cooke.

The psychological physician is often called upon, in the exercise of his responsible duties, to discharge medico-theological functions. It is occasionally our painful duty to sit by the couch of the dying, and to witness the last fatal conflict with that great enemy of man, "grim-visaged Death." It is on such solemn occasions that we have, either in co-operation with the recognised minister, or in his temporary absence, an opportunity of whispering words of comfort and consolation to the wounded spirit, and of directing the attention of our patient, and those immediately about him, to the only true and legitimate source of the Christian's hope. Let us not lightly esteem or neglect the sacred functions thus imposed upon us. It may be our privilege to co-operate with those whose particular duty it is to minister the precepts of our holy religion, and to suggest, without subjecting ourselves to the imputation of officiousness, the *degree* and *kind* of conversation admissible under certain physical or mental states. A zealous but indiscreet clergyman may, by the character of his admonitions, seriously interfere with the successful progress of an acute case of disease, and unwittingly produce an amount of mental and physical depression, from which the patient cannot rally. In the exercise of this solemn, this sacred, and imperative duty, the object should be to soothe, not to distract, the mind—to elevate, not to depress—to inspire a holy reverence and simple reliance upon that BEING who is the fountain of all justice and the reservoir of all mercy. Our Saviour is to be represented, not as the God of terror, but as a God of LOVE and MERCY. "What painter" (says the author of the "Velvet Cushion") "who has sketched the portrait of our Saviour, ever thought of arming him with thunder? No: love was His weapon; and this is the weapon His ministers should chiefly employ."

"Thou, fair Religion, wast designed,
    Duteous daughter of the skies,
To warm and cheer the human mind,
    To make men happy, good, and wise,
To point where sits in love array'd,
    Attentive to each suppliant call,
The God of universal aid—
    The God, the Father of us all."
PENROSE.

The physician, whilst officiating under such painful circumstances, has it in his power to disarm the imagination of the dying of those unphilosophical and often superstitious notions with which the fancy so often invests the act of death itself. It may be our duty to explain to those labouring under mortal disease, with certain death in immediate prospect, and who express with what may be termed some degree of truth, a morbid apprehension of the fatal issue, that, reasoning from analogous phenomena, we are not justified in believing that the act of death is accompanied with any physical agony. The violent muscular convulsions, simulating epilepsy, which occasionally accompany the act of dying, naturally suggest to the vivid imagination of the bystander the idea of intense suffering. It is within the range of our legitimate functions to expose this fallacy, and thus impart comfort.

It would ill become me to attempt to draw aside the veil which conceals from mortal vision the condition of the spirit whilst traversing "these painful passages."* In vain have the most highly gifted minds, the most exalted imaginations, and the most sublime flights of poetry, endeavoured to convey to our understanding a conception of the state of the soul during that terrible conflict which holy men have taught us to believe takes place in the act of death. To our finite conceptions, the struggle is ended as soon as life appears to be extinct. Is such the fact? or is the process of dying still going on, as some have supposed, even after the heart has ceased to pulsate? These subtile and mysterious questions are quite, I fear, beyond the range of the most acute and deeply-thinking philosophers.†

To many minds the subject of death presents many attractions. Its awful sublimity, the mysteries that hang over it, its natural associations with all that is tender and pathetic, invest it with a charm to which it is impossible for a man of taste and feeling to be insensible. What more sublime than the transition of the soul from one state of being to another! What more mysterious than the passage of the disembodied spirit through the valley of the shadow of death! Who can imagine the feelings of the traveller, or portray to our imaginations the visions of the place?

Viewing, however, the subject before us in a more practical light, and referring to the conduct of the physician at that solemn crisis, I would suggest, whether he may not have occasion to point out the propriety of some member of the family being by the bed-side of the patient in his last moments, as the approximation of those nearly related to the dying is supposed, upon good grounds, to comfort and sustain the mind, and smooth the path to the tomb, although there seems to be no apparent recognition or evidence of consciousness remaining. When Louis XIV. was dying, he turned to his physician, and exclaimed:

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* Milton.

† Under the heathen mythology, it was believed that the struggles of death continued till Proserpine had cropped the hair on the crown of the head, as victims were treated at the altar. Virgil has preserved this opinion in the fourth book of the Æneid, where he offers so fine a picture of the dying agonies of Dido.

"It is not so difficult to die as I expected." Voltaire, in referring to this circumstance, remarked, "All men die with composure and fortitude *who die in company*." He imagines that the courage of soldiers in the heat of battle is in a great measure owing to the fact of their being surrounded by those who may, in case they should fall, bear testimony of their gallantry and courage. By parity of reasoning, and from the observation of himself and others he concludes that the actual contact of a relative with the dying man, at the moment of the last struggle, sustains and supports him in the terrible convulsions that ensue, when spirit becomes disembodied from matter.

It is often the painful duty of the physician to intimate to his patient that the last gleam of hope has faded from his mind, and that he must prepare for the fatal change which awaits us all. I would impress upon your minds, recognising the powerful influence of depressing mental emotions upon the shattered physical condition, the great importance of not prematurely snatching from under the patient the only prop—frail and fragile as it may be—upon which his and our hopes of recovery rest. To inform a man that he must prepare for death; that his hours are numbered; to bring about his bed the wailing of deep distress, when reasonable expectations exist of his ultimate recovery, would, in certain temperaments, induce the prophetic result.

But an occasion may present itself when it will become our solemn duty to awaken the patient to a sense of his dangerous state and hopeless condition, and to point out to his relatives the necessity of his performing the last sad offices of life. On this subject can I do better than quote the admirable suggestions which the late Sir Henry Halford made in reference to the psychological conduct of the physician on these trying occasions?—

"And here you will now forgive me, perhaps, if I presume to state what appears to me to be the conduct proper to be observed by a physician in withholding or making his patient acquainted with his opinion of the probable issue of a malady manifesting mortal symptoms. I own I think it my first duty to protract life by all possible means, and to interpose myself between him and everything that can aggravate his danger; and unless I shall have found him averse from doing what was necessary in aid of my remedies, from a want of a proper sense of his perilous situation, I forbear to step out of the bounds of my province in order to offer any advice which is not necessary to promote his cure. At the same time I think it indispensable to let his friends know the danger of his case the instant I discover it. An arrangement of his worldly affairs, in which the comfort or unhappiness of those who are to come after him is involved, may be necessary; and a suggestion of his danger, by which the accomplishment of this object is to be obtained, naturally induces a contemplation of his more important spiritual concerns, a careful review of his past life, and such sincere sorrow and contrition for what he has done amiss, as justifies our humble hope of his pardon and acceptance hereafter. If friends can do their good offices at a proper time, and under the suggestions of the physician, it is far better that they should undertake them than the medical adviser. They do so without destroying his hopes, for the patient will still believe that he has an appeal to his physician beyond their fears; whereas, if the physician lay open his danger to him, however deliberately he may do this, he runs a risk of appearing to pronounce a sentence of condemnation to death, against which there is no appeal, *no hope*, and, *on that account*, what is most awful to think of, perhaps the sick man's repentance may be less available,

"But friends may be absent, and nobody near the patient in his extremity, of sufficient influence or pretension to inform him of his dangerous condition. And surely it is lamentable to think that any human being should leave the world unprepared to meet his Creator and his Judge, 'with all his crimes broad blown!' Rather than so, I have departed from my strict professional duty, and have done that which I would have done by myself, and have apprised my patient of the great change he was about to undergo.

"In short, no rule not to be infringed sometimes can be laid down on this subject. Every case requires its own considerations; but you may be assured that if good sense and good feeling be not wanting, no difficulty can occur which you will not be able to surmount with satisfaction to your patient, his friends, and yourself."*

Apart entirely from the great importance of our having a right appreciation of our position as accountable agents, the cultivation of a simple faith in the principles and truths of our holy religion during the hours of serious illness as well as at the moment of death, has, in its psychological effects, undoubtedly a valuable therapeutic influence upon the system, and, if judiciously regulated, may materially aid us in averting that crisis which the best and strongest-minded of men have anticipated with emotions of almost superstitious horror. The serenity, tranquillity, and resignation of the truly Christian mind, in moments of danger and during attacks of acute disease, will often do more to rouse the vital powers, allay unnatural excitement, and facilitate recovery, than any physical stimuli we may have it in our power to administer. Lord Bacon points out to the physician that it is a part of his art to smooth the bed of death, and to render the departure from life easy, placid, and gentle. An occasion may present itself, affording to the physician an opportunity of relieving the mind of the dying of oppressing and distressing thoughts that may be interfering with that composure and calmness so necessary and indispensable at this solemn and awful moment. When Goldsmith was upon his death-bed, the intelligent and sagacious eye of his physician recognised that the poet's mind was evidently under the influence of some concealed painful emotions. "I perceive," said his physician to Goldsmith, "that your mind is ill at ease." The poet readily admitted that such was the fact. He was induced to unburden his thoughts; and impressions which would, in all probability, have rendered his last moments miserable, were at once removed by the judicious advice, promises, and consolations of his kind and benevolent physician.

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* An Oration before the College of Physicians, by Sir H. Halford, Bart.

It will be our province, as psychologists, to trace the connection between a total want of sensibility in regard to those impressions which affect the eternal welfare of man, and certain morbid conditions of the bodily functions which are generally admitted to exercise an influence over the devotional emotions. Whilst expressing my firm belief in the existence of a direct interposition of divine agency upon the mind, and thus inducing spiritual changes in the hearts of those happily brought within the sphere of such holy inspirations, I nevertheless consider it my duty to suggest, that as God in his great wisdom often accomplishes his wise designs through the instrumentality of secondary agents, it is legitimately within our power, by watching the state of our mental and physical condition, to adapt the mind for the more ready reception and recognition of those truths, the right appreciation of which is so essential to the eternal welfare of the human race. I would speak with great caution, and with extreme diffidence, upon subjects so solemn and sacred; yet, I would ask, can the physician neglect their philosophical consideration? When alluding to this subject, Baxter, who cannot for a moment be supposed to entertain an irreverent thought in connexion with the subject of religion, observes, "The want of consolation in the soul is often owing to bodily disease. It is not more surprising for a conscientious man, under the influence of morbid melancholy, to doubt and despair, than it is for a sick man to groan, or a child to cry when chastised. Without the physician, in these cases, the labour of the divine would be in vain. Fear may silence the groans of the wounded spirit, but you cannot administer comfort. The consciousness of sin, and the apprehension of the wrath of God, are often the results of bodily distemper. ("Saint's Rest.") Again, in the "New Whole Duty of Man," published during the Reign of George II., in an article on "The Government of the Thoughts," I find the following very judicious observations to the same effect: "There are some cases when a man's thoughts are in a manner forced upon him, *from the present temper and indisposition of his body:* so that, so long as that habit of body lasts, he cannot avoid that sort of thoughts. This is the case of some deeply hypochondriac persons, many of whom will be haunted with a set of thoughts and fancies that they can by no means get rid of, though they desire it never so earnestly. We may properly call these *fancies of their waking dreams*, as their dreams are their sleeping fancies.

"Though we cannot, in many cases, think always of what we would—nay, though we cannot hinder abundance of thoughts from coming into our minds, *against our will*—yet it is always in our power to assent to our thoughts, or to deny our consent to them: if we do not consent to them, so soon as we are aware of them, there is no harm done. Should we be haunted with blasphemous thoughts, and cannot get rid of them, we must consider that our thoughts are no further ours than as we choose them; *that all sin lies in the will, and all will implies choice;* that those thoughts, therefore, which are not our choice, which we reject with a settled aversion and abhorrence, will never be placed to our account. So that our thoughts, however indecent or irregular soever they may be, are rather to be considered the infirmities of our corrupt nature, than our sins, properly so called. If we close with any thought that prompts us to evil, so as to be pleased with it, to think of pursuing it till it be brought into action, in that case we can no longer plead our natural corruption; for in that very instant we become actual sinners, or actual transgressors of the law of God. The mind is passive in receiving its notices of things, whether pure or impure; but it is active in its determination whether to harbor or discard them. As far as it is passive it is certainly innocent; as far as it is active it is accountable: and it is constantly active when we dwell upon impure thoughts with complacency—when we strengthen ourselves in wickedness by cherishing the remembrance of guilty joys, and laying scenes in our imagination for the entertainment of future pleasures. Here, then, we see in what the government of our thoughts consists: they are not criminal till they have the consent of the will; and the soul can withhold that consent till it has sufficiently considered the whole case." . . . . . .

"Notwithstanding what I have hitherto said concerning the diligence with which we are to keep our hearts, yet this is always to be remembered, that with our diligence we must be careful to join discretion. My meaning is this: we must have a care not to extend our thoughts immoderately, and more than our tempers will bear, even to the best things. And the way to do that is, not to put them too much or too long upon the stretch at any one time; but to relax them when there is occasion, and to let them run out and entertain themselves upon anything that comes to hand, so long as it is innocent."

Burton, in his "Anatomy of Melancholy," frequently adverts to the recurrence of unholy and impure thoughts, as a mental symptom of bodily disease, and so formidable a source of anguish as sometimes to occasion suicide." Archbishop Secker, who was himself originally a physician, speaking, in his Lectures on the Church Catechism, of the "Sin against the Holy Ghost," says: "As for what some good people are often terrified about, the wicked imaginations that come into their minds, and expressions that come out of their mouths, at times, almost whether they will or not, in proportion as they are involuntary, they are not criminal in them, *be they ever so bad*. . . . . . . When they apprehend they cannot pardoned, they entirely mistake their own case, either through ignorance or false opinions, or excessive tenderness of mind; or indeed more commonly by reason of some bodily disease, though perhaps unperceived by themselves, which depresses their spirits and clouds their understanding, and *requires the aid of medicine.*"

Emboldened and strengthened by such theological authorities—writers whose orthodoxy is above all suspicion—I would suggest that the attention of the psychologist should be particularly directed to the physical state when he witnesses instances of an exalted or depressed condition of the religious feelings, different in their character from ordinary and healthy manifestations, and not clearly and distinctly traceable to the influence of legitimate causes. I am aware that there is a disposition on the part of some, who take an *ultra-spiritual* view of the mind's operations, to repudiate as blasphemy the material theory just ennunciated. "What cheer," says Emerson, "can the religious sentiment yield, when that is suspected to be secretly dependent upon the seasons of the year and the state of the blood? I knew," he continues "a witty physician, who found theology in the biliary duct, and used to affirm that if there was disease of the liver the man became a Calvinist, and if that organ was sound he became a Unitarian." In reply to this, I would observe that many a man has considered himself spiritually lost under the mental depression resulting from long-continued hepatic and gastric derangement; and instances frequently occur of persons imagining themselves to be condemned to everlasting punishment; to be the subjects of demoniacal influence; and to hold personal converse with our Saviour, owing to the existence of visceral disease, or to a congested condition of some one of the great nervous centres. In the former case the mind has been restored to a right and saving appreciation of divine mercy, and has been made to rejoice in comfort and hope, as the result of a course of alterative medicine; and the morbid and unnatural ideas of demoniacal possession, and satanic and divine presence, have vanished as soon as the bowels have been made to act with healthy regularity, and the cupping-glasses have aided us in relieving the oppressed cerebral vessels. "It is probable," says Cheyne, "that they who have formed a lively conception of the personal appearance of Satan, from prints or paintings, have often had the conception realized in nervous or febrile diseases, or after taking narcotic medicine; and it is but charitable to believe that Popish legends, which describe victories over Satan by holy enthusiasts, have had their origin in delusions of the senses, rather than that they were pious frauds."—"If it were," says Baxter, "as some fancy, a possession of the devil, it is possible that physic might cast him out. For if you cure melancholy, (black bile,) his bed is taken away, and the advantage gone by which he worketh. Cure the bile, and the choleric operations of the devil will cease: it is by means and humours in us that the devil worketh."

I am acquainted with an excellent Christian lady, who at the critical period, loses all sense of religious impressions; her language during these attacks of partial derangement is most distressing and painful. I have occasionally to prescribe for a gentleman subject to attacks of sub-acute bronchitis, accompanied with a temporary perversion of the moral sense, owing, it is surmised, to the altered condition in the quality of the blood circulating in the brain. During these paroxysms his mind repudiates all idea of the existence of a God, and of a future state; and yet, when a healthy supply of properly arterialized blood is transmitted to the brain, the patient manifests, both in his conduct and conversation, the character of a true Christian gentleman. I had a young gentleman under my care whose whole moral character was completely changed, in consequence of a severe bodily injury.

The rationale of epidemic fanaticism is a subject of deep and important philosophic interest. How often mere exalted physical sensibility has been mistaken for the operation of the Holy Spirit; and illusions of the senses been faithfully and graphically recorded as evidences of divine or satanic presence. Was not Luther, whilst in confinement, under the influence of temporary insanity? His representations—believed by many to this day in their literal sense—that he had frequent personal contests with the devil, most likely depended upon local cerebral congestion or bodily disease, and would, in our times, have justified his confinement as a lunatic. In the early history of the crusaders, and during epochs of religious and political commotion, such as the great Reformation, and other social convulsions, it would not be difficult to cite numerous well-marked and unequivocal cases of insanity, which were considered at the time as instances of heroic religious devotion, political patriotism, and enthusiasm. Our much-respected fellow, Mr. Dendy, has written so ably and lucidly on the subject of apparitions,[*] that I hardly deem it necessary to more than refer to the connexion which we, as psychologists, know so closely exists between what are considered to be supernatural phenomena, and certain derangements of the cerebral circulation, diseases of the heart, and disorders of the digestive functions. Dr. Ferriar, in his essay on the "Theory of Apparitions," observes: "Instead of regarding these ghost stories with the horror of the vulgar, or the disdain of the sceptic, we should examine them accurately, and should ascertain their exact relation to the state the brain, and of the external senses. The terrors of nocturnal illusions would then be dissipated, to the infinite relief of many wretched creatures; and the appearance of ghosts would be regarded in its true light, as a symptom of bodily distemper, and of little more consequence than a headache, and shivering attending a common catarrh."

I have seen cases in which a belief in the appearance of an apparition has ushered in, in early life, severe brain disease, and in advanced age has been the forerunner of insanity. A gentleman, as the effect of an active condition of the cerebral circulation, saw for several nights a ghastly spectre in his bedroom. A week afterwards he had an attack of apoplexy, of which he died.

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[*] Philosophy of Mystery, by W. C. Dendy.

It is our duty, as psychologists, to trace the relationship existing between certain palpable deviations from a normal state of thought, feeling, and action often associated with great vigour of understanding, brilliant genius, and power of continuous attention to the complicated and active business of life, and those states of the bodily health and physical organization which may originate and stimulate to action such morbid mental phenomena. There is much latent, undetected, and unrecognised insanity in real life: insanity bringing with it a long train of deep and incurable misery. It assumes many aspects: occasionally it exhibits itself in the form of intemperance—an uncontrollable love of stimulants—clearly having a mental origin—in extreme eccentricity and in acts of an impulsive character. Again, it is manifested in brutal and cruel conduct; in others, it is evidenced either in an unnatural and unreasonable hatred of relatives, a total want of all moral sense, extreme irritability, tendency to crime, acts of viciousness, or in habits of inveterate lying. In fact, its shape is protean; and although those so unhappily afflicted pass generally through life as sane, healthy, and rational persons, in the estimation of the psychologists they are suffering from disordered understandings, and ought to be brought within the sphere of remedial medicine.

The biography of tyrants, both regal and domestic, is yet to be written; and it remains for the philosophic historian, capable of appreciating the effects of defective and arrested cerebral organization,—the influence of physical and moral agents, and of bodily disease, upon the character and temperament,—to account psychologically for the actions of men, the records of whose lives form the dark scenes of history, and present to the world a continuous career of morbid selfishness, crime, cupidity, caprice, tyranny, brutality and vice. We do not possess the data to enable us to judge satisfactorily of the mental or physical state of a Nero, a Caligula, or a Tiberius, who, as Tacitus informs us, was designated by his tutor, at the age of twenty, as "*a compound of mud and blood;*" but is it not charitable to suppose they were physically and morally diseased, and of unsound mind, the insanity manifesting itself in conduct, and not in ideas? Again, can we say anything, as psychologists, in palliation of the crimes of Catherine de Medici?—anything that would extenuate in the eyes of the world the brutal treatment to which Frederic William of Prussia, father of Frederic the Great, subjected his son?—or anything that would be an apology for the atrocious tyranny and savage brutality of Judge Jeffreys?[*]—anything to excuse the cold, calculating murders of Henry VIII.?—or the refined crimes of, and thirst for blood exhibited by Robespierre?—or say a word in extenuation of the unnatural furor with which the poet Savage was hunted to death by his own mother?[*] May not all these monstrous departures from ordinary and healthy modes of thought, impulse, and action constitute evidence, not only of depravity and vice in their ordinary signification, but of undetected, unperceived, unrecognised mental disease, in all probability arising from cerebral irritation or physical ill-health? Catherine de Medici's disposition did not show itself until after the death of her husband. I am not in a position to say how much of her conduct was to be attributed to the shock of his dissolution; but it is said she suffered from determination of blood to the head, so severe in its character as to require occasional bleeding for its relief. Frederic William of Prusia was a debauchee and a drunkard. He conceived, without any reason, an inveterate hostility to his eldest sister, and to the prince, his son, afterwards Frederic the Great. He compelled them to eat the most unwholesome, disgusting, and nauseous articles of diet. He was in the habit of spitting in their food, and behaving towards his son with great ferocity. King Frederic suffered from severe attacks of hypochondriasis, and great mental depression, and it was during one of these paroxysms that he attempted suicide. Who can entertain a doubt of his insanity, or of the good that would have resulted had his brutality and cruelty been considered symptoms of some affection of the brain, and he had been treated accordingly? Robespierre, after his death, was found to have extensive visceral disease; and it is notorious he suffered much from this affection during life. It is recorded that he rolled on the ground for hours in acute pain. I again repeat, it is the psychological physician who is alone fitted, by thought, reflection, and education, specially to consider, investigate, and elucidate satisfactorily these interesting phenomena, and to suggest the possibility of effecting important changes in the *moral* and intellectual condition, by bringing within the sphere of medical treatment the physical state giving rise to these departures from the sound and normal manifestation of the affections and propensities. Many a suicide would be prevented, and murderous impulse destroyed, if an active cathartic could be exhibited, or the cerebral circulation relieved, and rendered less active by means of local depletion. Is it not possible, by a course of medicine and a system of dietetics, to modify the diathesis, both mental and physical ? Dr. Arbuthnot says he cured an irascible diathesis by enforcing a milk and vegetable diet, and Dr. Rush relates a case of a man who was subject to severe paroxysms of anger, who was cured by the application of leeches to the head.[*] Let it not be thought for a moment that I suppose the skill of the *physician* can supercede the aid of the *divine ;* but " *the service of God is a* REASONABLE *service*," and divines themselves, eminent for piety and learning, are not unfrequently subjected to medical treatment, not only to arrest aberrations of the intellect, but perversion of the moral sentiments.

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[*] Mr. Macaulay says that Jeffreys was "tortured by a cruel internal malady, which had been aggravated by intemperance."—*History of England, vol.* 1, *p.* 67.

In the celebrated Western, or "Bloody" Assizes, as it has been termed, Jeffreys is said to have *hanged* 320 persons and *transported* 855! for "the most part of blameless life and of high religious profession." [*Macaulay.*] Previously to his starting for the circuit his health and spirits had given way. "He had," says Macaulay, "been deeply mortified by the coldness of the king and by the insolence of the chief justice, and could find little consolation in looking back on a life, not, indeed, blackened by an atrocious crime, but sullied by cowardice, selfishness, and servility." [p. 639.] During the celebrated trial of Lady Alice Lisle, Jeffreys is said to have "stormed, cursed, and swore in language which no well-bred man would have used at a race or cock fight." Addressing himself to one of the witnesses who gave evidence in favour of Lady Alice, Jeffreys exclaimed, with an oath, "Was there ever such a villain on the face of the earth? Dost thou believe that there is a God? Dost thou believe in hell-fire? A Turk is a saint to such a fellow as this! Oh, blessed Jesus! what a generation of vipers we live among? Was there ever such an impudent rascal? Hold the candle to him that I may see his brazen face!" [*Macaulay.*] As this monster progressed in his bloody work, his "spirits rose higher and higher as the work went on. He laughed, shouted, joked and swore in such a way that many thought *him drunk from morning to night.*" [*Macaulay.*]

[*] Poor Savage! No sooner was he born than his mother discarded him! After he had discovered the name of his parent, it was his practice to walk in the dark evenings for several hours before the door of his mother's house, in hopes of seeing her, as she might come by accident to the window, or cross her apartment with a candle in her hand; but Dr Johnson says "he could neither soften her heart nor open her hand." In attempting to explain the extraordinary hatred exhibited by the mother of Savage towards her only child, and the unnatural malignity with which she, by the most awful falsehoods, attempted to procure the execution of the unhappy poet, Dr. Johnson observes, that "the most execrable crimes are sometimes committed without apparent temptation." When alluding to his own miserable fate, Savage feelingly exclaims,—

"No mother's care
Shielded my infant innocence with prayer;
No father's guardian hand my youth maintained,
Called forth my virtues, or from vice restrained."

In referring to the possibility of the hallucinations of Luther being dependent upon physical causes, Coleridge observes that his unremitting activity, labour, and sedentary mode of life, during his confinement in the Wartsburg, had undermined his former usually strong health. Luther suffered from many of the most distresssing effects of indigestion, so much so that his friend Melancthon urged him to consult the physicians of Erfurth. He did so, and for a time regained his health ; he soon, however, relaxed into his former habit ; and Coleridge says it was evident from his letters that Luther suffered from great irritability of the nervous system, the common effect of deranged digestion in men of sedentary habits, who are, at the same time, intense thinkers ; and this irritability, added to a revivification of the impressions made upon him in early life, and fostered by the theological system of his manhood is abundantly sufficient to explain all his apparitions and all his nightly combats with evil spirits. " I see nothing," says Coleridge, " improbable that in one of those unconscious half sleeps, or rather those rapid alternations of the sleeping with the half-waking state, which is the *true* ' *witching time*,'

'The season,
Wherein the spirits hold their wont to talk,'

the fruitful *matrix* of ghosts,—that in one of those moments of slumber, into which the suspension of all thought, in the perplexity of deep-thinking, so often passes, Luther should have had a full view of the room in which he was sitting, of his writing-table, and, at the same time, a brain image of the devil, vivid enough to have acquired an apparent *outness*, and a distance regulated by the proportion of its distinctness to that of the objects really impressed upon the outward senses."[*]

No one can read the interesting account of the unhappy controversy between Hume and Rousseau, prefixed to the first volume of the historian's " Philosophical Essays," without having the conviction forced upon the mind, that Rousseau must have suffered, at the time, from temporary insanity. " The strange influence of his bodily temperament on his understading ; his constitutional melancholy, pampered into a morbid excess by solitude ; his wild dreams of suspicion ; his hypochondriacal fancies of hosts of conspirators, all leagued against him and his cause, and headed by some arch-enemy, to whose machinations he attributed every trifling mishap," are referred to as indications of an abnormal state of mind, not at the period recognised, or urged as some excuse for conduct which set the author of " Emelius" against all the world, and all the world against him. The persecution which Rousseau appeared to court, his affectation of singularity, his determination to live in a world of his own creation, and to have no sympathy or thought in common with his fellow-men, all indicate a constitution of mind, if not actually diseased, at least not remotely removed from that condition. Such, it would appear, is destined to be the unhappy fate of all who, to gratify a morbid singularity, resolutely oppose their own crude notions to the calm, deliberate, and healthy judgment of the rest of the world. In attempting a philosophical explanation of these phenomena, Coleridge observes : " To know that we are in sympathy with others, moderates our feelings, as well as strengthens our convictions ; and for the mind which opposes itself to the faith of the multitude, it is more especially desirable that there should exist an object out of itself, on which it may fix its attention, and thus balance its own energies."[†]

There are other important subjects that come legitimately and almost exclusively within the range of the speculations of the psychological physician, to which I can only cursorily refer. It is his duty to investigate the moral as well as physical effects of climate, and of the different systems of dietetics, upon the psychical character of nations ; the laws relating to the influence of the mind of both parents on the offspring ; the transmission of hereditary diseases and mental qualities ; the nature of the education best adapted to strengthen the mind and avert the development of insanity ; the influence of different kinds of amusements upon the public morals : the effect of the prevailing literature upon the formation of character and the development of the human mind ; the effect of different kinds of pursuits upon the mind and character ; and the *modus operandi* of music as a remedial agent. The interesting and important points involved in the investigation of the subjects of crime, penal legislation, capital punishment, trance, somnambulism, dreaming, &c., are only to be solved by the philosopher who, to an enlarged and cultivated understanding, unites a knowledge of the higher departments of physiology, joined to an acquaintance with the science of mental philosophy. Need I say another word to conclusively demonstrate the imperative necessity of establishing, in connexion with our national universities, a professorship of medical psychology, for the special investigation of these essentially necessary sections of philosophical inquiry, so important to the physician, the divine, the legislator, the jurist, the educator of youth, and to every one who feels, as all the educated classes should feel, an interest in the intellectual and moral progress, the temporal and eternal welfare, of man?

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[*] An English traveller calling on Voltaire, at Ferney, found him desponding, grumbling, and dissatisfied with all mankind. The conversation soon fell upon the miseries of life, and the Frenchman's *ennui* and the Englishmen's spleen exalting the mutual discontent of both parties, they ended by deciding that existence was too grievous a burden to be borne any longer, and agreed to commit suicide together on the following morning. The Englishman, punctual to his engagement, arrived at the appointed hour, provided with the means of destruction ; but the volatile Frenchman was no longer in the same miserable, suicidal mood, for on the other proposing to proceed immediately to the execution of their project, Voltaire laughingly replied, " Pardonnez-moi, Monsieur, mais mon lavement a très bien opéré ce matin, et cela a changé toutes ces idées-là."

[*] The Friend, p. 238.

[†] Ibid. p. 224.

Finally, I would observe, that of all the subjects that can occupy the attention of the philosophic physician, none equals in importance, or in grandeur, those which I have had the honour of recommending to your special attention. What can compare in dignity, in sublimity, in comprehensiveness, or in the lofty aim of its disquisitions, to the study of the nature and operation of that spiritual essence, upon the right knowledge and cultivation of which depends our happiness, both in time and in eternity? As the mind advances in a knowledge of its own phenomena, the intellect expands, new sources of delight open to us, and the pleasure we experience in the pursuit of these exalted speculations, impresses forciby upon the mind itself conclusive evidences of its own DIVINITY. He who has habituated himself to trace out the numerous applications of mental philosophy to the important subjects of education, morals, and legislation; to analyse the nature of thought, the laws regulating the association of our ideas, the springs of action, the origin of our happiness, the laws of moral science, the nature of the passions, the formation of character, the foundation of our hopes, and the influence of our emotions, —will appreciate the value of this branch of science. The physician will be conscious, as he advances in a knowledge of the constitution of the mind, that his love of truth is growing strong; and whilst, in the spirit of true humility, he acknowledges the limited nature of his intellectual powers, he will, whilst contemplating their grandeur and importance, recognise the GOODNESS AND MAJESTY OF GOD.

Mr. President, my task is drawing to a close. In glancing retrospectively at the preceding portion of this lecture, I feel oppressed by a consciousness of the imperfect and inadequate manner in which I have sketched the exalted spiritual functions of the physician. Have I not reason to blame myself for attempting to grasp a subject so great and sublime? And have not those whom I have the honour of addressing, a right to censure me for my presumption in selecting for illustration a theme requiring for its successful elucidation and expansion an amount of knowledge of the higher departments of philosophy, an originality of conception, and power of illustration, to which I have no pretension? Sir, our position as medical philosophers, occupied in the investigation of the phenomena of life, of mind, and of disease, entails upon us anxious, solemn, and responsible duties. In the hour of pain—when the spirit is humbled by suffering—in the day of distress—in the solemn moment of dissolution,—it is our high and noble privilege, like guardian angels, to hover about the couch of the sick and the dying. We enter the chamber of the man writhing with agony, bereft, perhaps, of that which alone made existence pleasurable, the right exercise of the mental powers, and loud and affectionate demands are made upon our sagacity and skill. Life—the silken thread—the silver cord, of life—depends upon our rapid appreciation of the phenomena of disease, and ready administration of remedial agents for its relief and cure. Yes: our profession is a noble one—a most dignified, exalted, and honourable calling. Amidst the calumnies that assail us—the obloquy to which we are sometimes exposed—the cold neglect, contumely, and ingratitude of those who eagerly availed themselves of our skill in the hour of their deep distress,—it is gratifying to my feelings to place before you a portrait of the true Christian physician, sketched, not by one of ourselves but by the master-pencil of one who deservedly holds a high and distinguished rank among the female writers of the day:—

"The skill of the physician puts in requisition the highest faculties of the human intellect, as its administration calls forth the tenderest sympathies of the human heart. The able and kind physician is a human benefactor. He garners up the treasures of learning and experience, that he may dispense them again to the suffering brethren. He comes with his timely succour, cheering both body and spirit with the single boon of health. He raises the sick man from his couch of pain, and sends him forth, elate and vigorous, for fresh enjoyment. He restores the ailing, and rejoices their despondent friends. He gives new life to the sick, and revives the hopes of those who depend on the sick man's recovery for subsistence."*

To conclude: while feeling that the best of our works are imperfect, and that we must rely for our future happiness upon the great mercy of God, and not upon our own merits, I cannot be forgetful how great is our responsibility for the right use of our talents and the faithful discharge of our solemn and anxious duties; and I would therefore venture, with all deference and respect, to address to each of my professional brethren the admonition of one of America's most gifted poets:†—

"So live, that when thy summons comes to join
The innumerable caravan, that moves
To that mysterious realm, where each shall take
His chamber in the silent halls of Death,
Thou go not, like a quarry slave at night,
Scourged to his dungeon; but, sustained and soothed,
By an unfaltering trust, approach thy grave;
Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams."

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* The girlhood of Shakspeare's Heroines, chap. "The Vocation of the Physician." By Mrs. Mary Cowden Clarke.

† William C. Bryant.

ON SOME OF THE MORE IMPORTANT POINTS IN THE PHYSIOLOGY, PATHOLOGY, AND PRACTICE OF MIDWIFERY.

By. J. Power, M.D., &c.

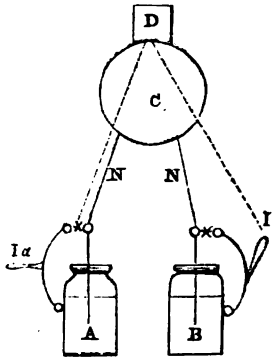
[*Concluded from September No., p. 192.*]

Abnormal Parturition (*continued.*)—2. *Where the abnormal conditian depends on morbid or unnatural actions of the organs concerned.*—The more leading feature of the author's treatise on midwifery was an attempt to show that the pains so generally accompanying labour were not essential to the process, but admitted of being lessened or removed, with the effect of inducing more vigorous and propitious uterine action, views suggested and confirmed by several years of previous observation and experience, and which, however they might have been questioned at the time, are now virtually admitted in the science of midwifery, but with little or no acknowledgment of the source from which they have been derived. In a recent work,* the only allusion made to these views is where its author, when treating of rheumatism and inflammation of the womb in labour—both rare if not suppositious cases, says:—"We presume it is to these cases that Dr. Power alludes when he says 'the improper action will be removed almost instantly, and as it were by a miracle, so that a case which has been protracted for the greater part of a week, under the most intense suffering, and without the least progress, has been happily terminated in fifteen or twenty minutes from the first commencement of the friction.'"

Whoever may think proper to consult the original work of the author cannot fail to be sensible of the injustice and inaccuracy of the above dictum, which can only have been suggested by a hasty or partial reading, or an imperfect comprehension of the views therein inculcated.

A large majority of the morbid states comprised in the present consideration were advanced, in the first instance, as the results of that principle then known in the doctrines of medical science under the term "metastasis," the parturient energy being assumed to be transferred, in consequence of sympathy or association, from the uterus to other, and sometimes very distant and distinct parts. This principle may now be considered as virtually established, although it has more recently been explained by referring the transference in question to "reflex action," or, in other words, by contemplating it under a *new name.*

The doctrine of reflex or diastaltic action previously alluded to (The Lancet,) has doubtless conferred lasting honour on Dr. Marshall Hall, and contributed essentially to a better intelligence of the nervous system and its functions; nevertheless, the author of the present papers humbly conceives, that if he did in no respect precede that gentlemen, when he applied the metastatic principle to the subject of midwifery, he at least made a decided step in advance of previous science, and which contributed materially to the improvement of that art; nor does he think that the practice thence deduced has since been materially improved upon. In both his original work and subsequent lectures, the parallelism of his metastatic principle with the doctrine of reflex action is clearly indicated, and he was in the habit of demonstrating his opinions to his pupils by diagrams undeniably confirmatory of their virtual resemblance, of which the following is an example:—



A. an organ to be primarily affected; B, an organ to be secondarily affected; C, the general reservoir of nervous principle, comprising the cerebral, spinal, and ganglionic systems; to which is superadded, D, the mind, or source of the perceptive and volitionary principles; N N. nerves connecting the organs A B, with the reservoir C, by virtue of which the organs become charged with nervous power.

I *a*, a primary irritation, stimulus, or exciting cause, being applied to the letter A, throws it into action, represented by *, the effect or sensation of which, represented by the dotted line - - - -, is carried to C or D, where, producing an impression or sensation, it becomes a secondary irritation or stimulus, I *b*, which, acting on the secondary organ, B, throws it into motion, in which case the sensation or effect may, in its turn, be conveyed to C or D, and produce new secondary action.

In the above diagram, it can scarcely fail to be remarked, that the secondary action would have been well expressed, in so far as the diagram represents it, by the word "reflexion;" and it will be further evident, that the nervous connexion between the organ A and C correctly corresponds with the kind of communication now assigned to an afferent, and that between C and B, to an efferent nerve.

The above diagram may in itself be regarded as explanatory of simple primary excito-motory function and of secondary or metastatic or transferred action; but let A be taken to represent a normal or proper motor organ in the system, and B any other distinct organ, it will be seen how, in conformity with this position, the action excited in A is transferred or reflected to B, so as to influence the latter, and produce effects which admit of being carried forward in a similar way, as in a chain, through a *series* of additional distinct organs. It is on this principle that the author has attempted to explain the numerous complications in which parturition abounds.

Independently of the above, the author is in possession of a number of similarly-constructed diagrams, made nearly a quarter of a century since, in which the various and more complicated transferences of nervous power, throughout the system at large, are attempted to be made manifest.

Admitting, with the above reservations, but still maintaining the virtual analogy with the metastatic principle, that the theory of reflex action, corroborated as it is by anatomical and physiological research, affords a more lucid explanation of the phenomena of parturition, the author now proceeds, in conformity with it, to investigate the morbid or abnormal states of labour to which it appears applicable.

It is presumed by this theory, that incident sensory actions are conveyed by the afferent fibrillæ of sensory nerves to their respective nervous centres, where, becoming, as it were, *stimuli de novo*, a new action is induced, which, by means of efferent motory fibrillæ, is transmitted to the muscular organs therewith connected, and which are consequently thrown into motion. This system forms what has been termed a nervous arc. In a normal state of parturition, the primary incident part or sensor periphery is placed at the orificial part of the cervix or os uteri; while its nervous centre is probably situated in the spinal cord, rather than presumed to exist in ganglia placed in the immediate neighbourhood of the uterus itself—in fact, through the medium of that independent nervous centre, the spinal cord, which some have assumed to consist of a chain of ganglia imbedded in white matter, inasmuch as it is known that one *isolated* portion of it is capable of producing reflex action in a muscle whose nerves are connected with it. This uterine arc, in itself, however, possesses no *necessary* connexion with the spino-cerebral cord, and the uterus in consequence, may be regarded as an involuntary organ, capable of expelling its contents without being necessarily associated with other parts of the system. This simple expulsatory system probably exists with respect to many of the lower animals, and is occasionally, although rarely, met with in the human female, particularly amongst those people who are living in the less civilized state.

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* Rigby's System of Midwifery, p. 242.

But it is almost invariably found, in our existing state of civilized life, that numerous additional arcs, with their nervous centres situated in, or more or less connected with, the spino-cerebral and great sympathetic ganglionic systems, exist, and are associated with the above normal uterine arc by virtue of sensor or motor nervous fibrillæ running from one to the other, and which give rise to numerous associated and frequently distinct actions, the results of which may be to derive from the uterus that principle which ought to actuate it, and thus weaken its power. Another and most important effect is, that these new and secondary actions are not unfrequently accompanied by morbid or painful actions of any of the various parts thus associated—the probable basis of the present varieties of abnormal labour.

It is, however, generally believed that some of these secondary arcs are normally associated with the primary uterine arc in producing or assisting the expulsive power, as, for instance, those which give rise to accompanying expulsive efforts of the abdominal muscles. Nature, however, is generally simple in her operations, and it is questionable whether this view be strictly correct; and it can scarcely be denied that powerful or voluntary exertions of the abdominal muscles will have a tendency to detract from and weaken the proper action of the uterus; at the same time it is admitted that the complication in question is now so general as to entitle it to be regarded as depending on a *quasi normal* association.

How the various above associations have originally been established, is a point of the greatest abstrusity; some of them are so whimsical as to baffle all conjecture—for instance, the author's father knew a lady who in the act of micturition always experienced an acutely agonizing pain in one of her little fingers. It appears certain that comparatively few of them exist in the uncivilized state of man, and therefore they ought to be attributed more or less to the habits and circumstances of civilized life, which have progressively formed, extended, and perpetuated them into hereditary principles. We find an interesting elucidation of this view in the book of Genesis, where Pharoah, having reproved the midwives for not destroying the males of the Israelites in the birth, the reply was, "the Hebrew women are not as the Egyptian women, for they are lively and are delivered ere the midwives come in unto them." Now the one was a pastoral and simple people, and the other the most highly civilized and luxurious nation in the then known world. The subject admits of great amplification, which the brevity of the present papers will not admit of.

The causes of abnormal reflex action in labour might be considered under the heads of proximate, predisposing, and exciting causes. The two former of these, however, are probably sufficiently involved in the preceding observations. The *exciting causes* are of practical importance; their *modus operandi*, however, until we have a better comprehension of the nature of nervous influences, is necessarily obscure, and their effects occasionally manifest themselves, even when the labour is apparently proceeding most satisfactorily, suddenly and unexpectedly, so as to produce great protraction and distress; and in a similar way, when existing, they admit of removal, the case then immediately reverting to the most propitious state.

The numerous exciting causes may be regarded generally as *irritations* existing in some other part or parts of the general system with which the uterus may have become associated, so as not only to derive from the uterus that nervous principle requisite to maintain its function, and thus lead to abnormal conditions, but also to occasion morbid or painful actions of the associated parts themselves. Among the more influential of these causes are irritations affecting the digestive system, whether connected with improper ingesta, such as food, spirits, &c. or in the lower portions of the alimentary canal, as regard defaults not excretions; irritations of the urinary organs, in which respect a very common source of derangement is an undue retention of urine, the removal of which by the catheter will often at once restore the proper uterine action. Another important set of exciting causes are affections of the mind; these are the same as have already been described as sources of suspended labour; in fact, there appears to be a strong alliance between the latter and metastatic or reflected action in labour; but why in the one case the result should be negative, and in the other positive abnormal action, it may not be easy to explain: a variety of *accidental* causes may be named, as improper ventilation or temperature of the lying-in room, too close confinement to bed, fatigue induced by walking about the room, want of sleep, and such analogous causes. Additional exciting causes may be found in voluntary attempts to hasten the delivery, by exerting forcibly the abdominal muscles, and also in an undue irritation or sensibility affecting the os uteri, vagina, rectum, or parts contiguous to the uterus, or even any other part of the system more or less distant from it.

The effects of reflex action in abnormal parturition are extremely diversified, so as almost to warrant the assertion that no two cases of labour are precisely alike. The more general ones relate to the influence exerted over the uterine contractions, which, in proportion as the nervous principle is diverted, always fail to be less efficacious, and are in many instances entirely negatived, a fact readily detected by either utero-abdominal or utero-vaginal examination. A necessary consequence is, that the case becomes more or less protracted. An immense variety of *particular* effects may be manifested, depending on the particular parts implicated, and the nature of the actions induced in them. They may be referred to the following heads:—1st. When *painful affections* are produced. 2nd. When they influence the heart and circulating system, so as to give rise to fever, local congestion or determination, syncope or convulsions.

1. *Painful affections*, of which two modifications are to be noticed: the one when the pain is situate in the uterine muscles, the other when it affects parts distinct from them.

In the former of these modifications the painful action appears to be referable to the primary uterine nervous arc solely, the muscles affected, instead of assuming their proper normal action, becoming abnormally affected; notwithstanding, it by no means follows that there is no concatenation of secondary or distant arcs with that of the uterus, by virtue of which the latter may be thrown into its abnormal state, the actions of such intermediate arcs or links remaining apparently quiescent or nearly so: thus in gout, although the primary exciting cause and action be situate in the digestive organs, an emotion taking place in the mind of the patient may either aggravate or relieve the painful actions of the foot. But if this be not the case, and admitting the uterine pain in labour to be unconnected with any secondary nervous arc, reason might be assigned to explain why the primary orificial irritation, instead of normally affecting the uterine muscles, may produce abnormally *painful* actions of those muscles. There remains, as yet, much to be explained respecting the nature of spasmodic action and its consequent pain. Whether they depend on minor nervous arcs possessing polar arrangement and situate in the fibrillæ of the nerves of the muscles affected, is certainly at present far from demonstrated; or is it possible that the abnormal spasmodic contractions are the results of spontaneous electro-like discharges of nervous fluid, arising from a peculiar condition of the terminal loopings of the nerve fibres lying in close approximation with the muscular tissues, and permitting irregular transmissions of nervous principle to the latter? Supposing this to be the case, there is reason to believe that the spasmodic effect is not necessarily dependent on any positive excess or accumulation of nervous principle, or vigorous condition of the system, inasmuch as it is not unfrequently a symptom of debility, and manifests itself when a patient is nearly in *articulo mortis*; hence, in labour, spasmodic pain more generally occurs when causes of depression are in operation. One fact, however, appears certain—namely, that spasmodic pain admits of being relieved by pressure and friction; whether in consequence of their changing or equalizing the nervous relations of the part, or by the support they give to it, is quite problematical. Various sedative means, direct or indirect, and counter-irritants, also appear capable of removing the spasmodic state. As the principles in question admit of being applied to all the modifications of painful labour, it has been deemed important to advert to them in the present instance.

Under all circumstances where spasmodic pain occurs, it is incompatible with the proper function of the organ affected by it: thus, in the act of deglutition, if it take plaçe in the muscles of the œsophagus, the passage of the food is arrested or rendered difficult; the same principle applies precisely to the uterus in labour.

It by no means follows that cases of this nature will show no symptom of advancement, as there will often be a considerable accompaniment of uterine contraction, which may be sufficient to overcome the resisting powers, however slightly; otherwise the progress will be indefinitely negatived.

The *treatment* of painful uterine action must be generally similar to what will hereafter be detailed with respect to the more important modification of extra-uterine pain, and, to avoid needless repetition, will now be only briefly adverted to. One leading point is, to remove the various exciting causes, and to relieve the painful action by a more or less active attention to the following remedial means—namely, by the administration of anti-spasmodics and sedatives, direct or indirect, as bleeding, opium, anæsthetics, fomentations, warm injections, bandaging, pressure, and friction.

It is to be observed, however, that it may generally be more or less calculated upon, that cases of this character, constituting what obstetricians commonly regard as "natural labours," if left to themselves, will at length terminate safely, if not satisfactorily; and therefore it becomes questionable whether they should or should not be interfered with, as the attentions of the accoucheur, however properly meant, may be misconstrued, even by his professional brethren, into officiousness, and, however beneficial to his patient, prove ultimately injurious to his own interests. Such is the weakness of human nature and the influence of prejudice! Such results the author has occasionally experienced; but he retains the conviction, that, by adopting the principles he has advocated, he has not only conscientiously discharged his duty, but essentially contributed to the comfort and welfare, if not the happiness, of his patients.

Painful Reflex Action in Labour.—2. The second modification of *painful* reflex action in labour, is when the abnormal state affects parts distinct from the uterine system. The general principles on which it depends differ little, if at all, from what have been advanced with respect to uterine pain, in the preceding paper; it is therefore the varieties of effects depending on the particular parts to which the transferrence is made, which is now to be considered.

The painful affections induced are situate in one or more of the following parts: the muscles of the abdomen—the back—the hip—the thighs; those attached to the sacrum and coccyx; and even the more distant muscles of the upper or lower extremities may be affected; and not unfrequently the bladder, the rectum, and the vagina itself. If the organ or part affected possess expulsive property, in addition to the ordinary spasmodic pain, the case may exhibit a degree of expulsive character which is not always to be readily distinguished from true expulsive uterine action; but in general the sensation induced is of the most acute and distressing kind, resembling what the older obstetricians termed "grinding or *dilating* pains," and distinct from "expulsive or bearing-down pains." These agonizing pains are generally accompanied by great depression of mind, and the most gloomy anticipations. The above unpropitious state may occur during any portion of the labour, even when the case is apparently near its termination, and then be productive of a long state of protraction; it may also at any time suddenly disappear, and genuine action return; and occasionally the two conditions will repeatedly alternate in distinct paroxysms, or even be manifested in one and the same paroxysm—in the latter case affording an explanation of that passage in Denman, in which he says, "There is, in the first instance, some degree of *dilatation*, and afterwards an effort to expel, and then there will be the expression which denotes sharp pain, immediately succeeded by a grave tone of voice."

It is impossible to conceive a situation more distressing than that of a female suffering under a severe case of painful extra-uterine labour.

The *treatment* is obviously of the highest importance. It involves the following indications:—

A. To remove the exciting causes. Particular attention should be paid to the state of the alimentary canal, indigestible food and too stimulating beverages being carefully avoided. If there be constipation, it may be relieved by a mild purgative, or, what is more prompt and preferable, an enema. Distension of the bladder is to be relieved by the catheter, and the patient ought not to be allowed to continue too long without an attempt to pass urine. If the mind be depressed, it should be soothed and reassured, so as to encourage hope and confidence; and this moral treatment may be assisted by a moderate use of cordials, such as camphor, sal volatile, lavender, warm gruel, tea, &c. If any accidental irritation affect the patient, it should be obviated by appropriate means.

B. The second indication of treatment is, to relieve the painful action, which effected, the succeeding actions of the uterus may be confidently expected to become more normal; the case not unfrequently proceeding to a propitious, rapid, and felicitous termination. The means of pursuing this indication are as follows:—

a. Bleeding—the favourite remedy of many in painful and protracted labour. Dr. Hamilton, in his lectures, used to boast that he could, with his lancet, finish any such case within twenty-four hours. Dr. Dewees, of Philadelphia, bled repeatedly, even *ad deliquium*, and says, "It is a divine remedy, which the women of *this* country speak of with rapturous effusions of gratitude; independently of its good effects on the labour, it extends its benefits to the future health and happiness of the patients." If this means be adopted, it certainly should not be carried to the above extent, which will risk too great a diminution of vital power, and at the same time, by suspending the placental circulation, implicate the safety of the child. Nevertheless, sufficient blood should be abstracted to secure the desired sedative effect. The author has rarely had recourse to it, believing that he has succeeded more satisfactorily by less objectionable means.

b. Opium.—This remedy, in doses of one or two grains, was originally recommended in labour by Dr. Mead, in his "Monita Medica;" and there can be no doubt that in such doses it is capable of allaying pain and promoting better uterine action. The late Dr. Sparks, of Ipswich, however, has been its warmest advocate, carrying his doses to the extent of six or ten grains. He says, "I have exhibited these doses in more than 100 cases without any particular inconvenience; the spirits of the woman are exhilarated, the uterus performs its functions with vigour, it gives way rapidly to the pressure of the child, the placenta never adheres, the patient is not affected with afterpains, and she recovers more quickly than those who need not the use of opium." Other practitioners, on the contrary, disapprove of the use of opium in labour. Dr. Dewees says, "I have repeatedly tried it myself, and seen it employed by others, but without, in a *single instance*, producing the effect for which it was prescribed; sometimes it evidently did harm." The author has frequently administered opium in doses of one or two grains, or from thirty to fifty drops of laudanum, and is convinced of its great utility; but when given in larger doses, he has known it suspend uterine action, so that it has ultimately become necessary to deliver with the forceps.

c. Anæsthetics, or the inhalation of certain chemical compounds, as chloroform, the vapour of ether, &c., a mode of treating painful and protracted labour which has within the last few years been introduced, and which has the effect of producing more or less exhilaration, and ultimately, if carried to a sufficient extent, of throwing the patient into a state of insensibility, during which the pain lessens, or entirely subsides, effects which to the patient are frequently highly gratifying. According to the author's experience, a great objection to these means is, that they not unfrequently weaken or suspend the uterine action; the suspension, however, he admits, has not been of long duration, but he has felt assured that the case would have gone on as favourably, and been less protracted, had he been allowed to depend upon the means to be presently noticed.

With respect to this mode of treatment in labour, the following fact deserves notice: So long since as the year 1827 or 1828, the author was in the habit of suggesting to his class the inhalation of the nitrous oxide, for which suggestion he was indebted to his friend and then colleague, the late Mr. Jackson, of Rotherhithe, who, in some cases, had exhibited it with decided advantage, its effect being to exhilarate the patient, relieve the pain, and promote uterine action. It is not improbable that, in some cases at least, its use might even now be preferable to that of the chloroform; the great objection is the difficulty of being provided with the requisite apparatus, &c. The author did for a long time keep a gasometer charged with the gas, but never found a convenient opportunity or necessity for resorting to it. Mr. Jackson's former private pupil, Dr. Broughton, now of Preston, Lancashire, and a magistrate for the West Riding of Yorkshire, could doubtless confirm this statement, and communicate further details respecting it.

d. Fomentation, applied hot to the parts affected, will generally give great relief; even warm fluids may sometimes be injected with advantage per anum, vel per vaginam, when the pudendum or rectum participates in the painful action.

e. Friction—affords one of the most effectual modes of relieving spasmodic pain. Its application was formerly only resorted to in cases of placental retention. Its use in active parturition, suggested by the analogy existing between the pains accompanying protracted labour and those of spasmodic pain under other circumstances, was first promulgated by the author, who for many years previously had found the effects almost miraculous. In his work published in 1819, and its succeeding edition in 1823, the principles and modes of its application, illustrated by numerous cases, were fully detailed, and to them the reader is respectfully referred, as the brevity of the present pages, which profess to be a mere sketch, will not admit of their repetition; besides, the statements of the author were at the time deemed unnecessarily prolix, and, not unlike the gentlemen mentioned in the preceding pages, he doubtless, and perhaps not without justice, may have been chargeable with too great enthusiasm with respect to his favourite remedy; nevertheless, he still feels justified in asserting, that whereas previously to the adoption of this mode of treatment, in common with all other accoucheurs, he was in the habit of being long detained with painfully protracted cases, he was then enabled to terminate almost every individual case with comparative comfort to the patient within six hours from entering the lying-in chamber, the few more prolonged ones being justly entitled to be regarded as rare exceptions to a general rule. Another happy result is, that the subjects of his treatment, without exception, recover most felicitously without any subsequent illness which could be attributed to it.

The friction should be applied with the hand to the part affected, the object in view being to produce a warmth and glow in it, and to effect this the fingers should be used in preference to the flat of the hand. At the first commencement the great soreness or tenderness of the part will occasionally prove an obstacle, but a little perseverance and tact alleviate this, and the benefit soon becomes evident. Should the pain on being expelled from one part shift, as it occasionally will, to another, as from the abdominal muscles to those of the back, it should be pursued there. The patient will not unfrequently express her sense of relief, and scarcely permit the rubbing to be discontinued for an instant. It may not be easy to explain how the friction acts, but probably its good effects arise partly from the warmth it occasions, and partly from concussion of the nervo-muscular fibres producing a change in their nervous relations.

The good effects of friction are not confined to the mere relief of pain, as will be seen under the succeeding indication of treatment.

f. Pressure.—This is an important adjuvant to friction. The advantage of pressure is well illustrated by the anxiety the patient so often expresses to have her back *held;* and it is an interesting confirmation of it that the side on which she lies is comparatively little. if at all, affected by the pain. The pressure may be made with the hand, and in immediate cooperation with the friction, the hand alternately rubbing and pressing, or champooing, as it were, the part affected. Another mode of application is a firmly-adjusted bandage.

C. Another and important indication of treatment is to promote uterine action. The present subject is naturally involved in the preceding indications; for whatever relieves the painful actions will necessarily tend to throw back the parturient energy on the uterine muscles. There are still other means of fulfilling the indication, the majority of which have already been alluded to, but which deserve farther notice in the present place.

a. A late eminent practitioner once observed to the author, that if you pulled a woman in labour by the nose, and made her believe it would do her good, the action of the uterus would strengthen, and the case become more propitious. A useful inference may be drawn from this *facetia*—the importance of influencing the mind of the patient so as to induce rational confidence; for however assured the practitioner may be of the correctness of his principles and treatment, he is not to be surprised at their failure if the mind of his patient continue materially depressed.

b. An important mode of increasing uterine action is to apply a direct and determinate stimulus to the orificial parts, which may be accomplished by bandaging the abdomen, which will have the effect of producing increased pressure on those parts: also by pressure with the hand, accompanied by friction, as has so lately been described; an addition to the above is to combine with it stimulation of the os uteri, by means of a finger introduced per vaginam; the effect of these means, used in conjunction, will often induce powerful contraction, and the most satisfactory progress. The rupture of the membranes, if they be rigid, and fail to break spontaneously when the os uteri is becoming well dilated, should also not be neglected.

An important advantage may occasionally be attained when the finger is within the vagina, which, if it does not positively increase uterine action, not unfrequently serves as a substitute for it; this is, to employ it in a cautious attempt to dilate the os uteri. The practice may be censured; but it is in fact only effecting by art with ease and facility what nature has rendered necessary, and would otherwise accomplish with comparative distress and delay.

c. The ancients, from Hippocrates downwards, and the mediæval practitioners. have recommended various means, medical and otherwise, for promoting or "provoking" labour in cases of protraction. Many of these are absurdly ridiculous, and yet they were reputed to "help marvellously." It is worthy of remark that the best of them are antispasmodic or anodyne, which would have the effect of relieving pain; or sternutories, the tendency of which was to induce pressure on the orificial parts so as to promote uterine action; while others were calculated to give confidence to the patient. The modern practitioner has generally abandoned the use of the whole of them and there are now comparatively very few *medica* means resorted to in labour. The only one which will be here noticed is the secale cornutum, or ergot.

The Ergot or Ergotine.—This singular parasitical production of the rye, and also of some few other plants, as the glyceria fluitans, although long known to botanists, and for its effects in parturition, was little used until within the last thirty years. The history of this medicine, its presumed effects as a specific exciter of uterine action, the mode of administering it, as well as the objections it is liable to, and the precautions required in its use, are all so well known, that it would be superfluous here to detail them; what is of more consequence. is to endeavor to determine how far it really merits the high opinion so generally entertained with respect to it. The author was one of the first in this country to give it a trial, having administered it to various patients in the years 1822 and 1823, and since that period to the present time he has frequently used it, particularly in consultation with other practitioners; and he regrets to feel bound to say, that, although administered in large and repeated doses, and with every anxiety to do it justice, it has invariably proved apparently inert, and disappointed his expectations. That in the hands of many it has frequently been followed by more propitious effects, he by no means doubts; but it is to be recollected that it is not unusual, where neither ergot nor any other means have been resorted to, that unexpected and felicitous changes are met with; it is also to be noticed that this particular remedy is generally administered in warm infusion or decoction, or in the form of spirituous or æthereal tincture, and which by their *warmth and stimulus* may tend to relieve the spasmodic pain, and induce more powerful uterine contraction, or even operate through the medium of the mind. Under this supposition, the author has occasionally made the patient drink one or two cupfuls of *hot water*, and he conscientiously declares that it has proved equally, or more efficacious, in altering the character of the succeeding pain. His friend, Mr. S——, of Brydges street, Covent-garden, doubtless well recollects an instance of this kind. It will be unfortunate if a remedy, which many think "helps so marvellously," should eventually prove to possess little more real virtue than "an eagle's feather placed under the left foot of the patient;" which John of Gaddesden says, "*facit parere statim.*"

2. The second head of reflex action in labour, is where it influences the heart and circulating system, so as to give rise to fever, local determination or congestion, syncope or convulsions; of these effects, it is purposed in the present paper only to notice the latter, generally known as *puerperal convulsion*.

It is conceived that convulsion *generally* is the result of a determination to and congestion of blood in some portion of the cerebral or spino-cerebral system; that it takes place at the time of labour in consequence of those parts being associated with the uterine organs, by virtue of metastatic or reflex action, was for the first time enunciated by the author in his "Treatise on Midwifery," so frequently adverted to (see first edition, p. 239, second edition, p. 141.) Many facts may be adduced to render the correctness of this view more than probable; thus, the convulsions, together with their occasional precursory symptoms, as pain in the head, giddiness, &c., are generally preceded by severe pain, either uterine or extra-uterine; they also come on and go off in paroxysmal form with the regularity of labour-pains, so as to appear to be a modified substitute for the latter, and have the same effect as extra-uterine pains, in suspending the expulsive action of the uterus; and after delivery, in a similar way, they either go off entirely, or are materially alleviated;—in fact, they appear entitled to be regarded as depending on additional links or nervous arcs in the chain of the excito-motory nervous actions. The predisposition and the exciting causes are precisely the same.

It may be a subject of interesting inquiry, why in one case the reflected action should be of a painful nature, and in another, give rise to convulsions? Whether the fact that the latter take place more frequently in primiparous cases, and where the mind has been much excited, as in illegitimate pregnancies, throws any light on the subject, it is not pretended to determine.

Upon the above view of the nature of puerperal convulsions its treatment ought to be regulated. Independently of the means usually recommended for the relief of the cerebral congestion, as bleeding, &c., a careful attention should be paid to obviate any exciting cause—"sublatâ causâ tollitur effectur;"—assuming there may be various arcs or links in the nervous chain, cutting off the first or any intermediate link may probably render the ultimate one inefficient; thus, the use of the catheter when the bladder has been found distended with the urine, has had the effect of terminating the convulsions. No treatment, however, in puerperal convulsions, although the practice may be novel, promises to be more effectual than an attempt to restore genuine uterine action on the same general principles as have been recommended in cases of extra-uterine pain, particularly the application of friction and orificial irritation. In the few cases in which the author has had the opportunity of using them during actual labour, they have fully answered his expectation, terminated the convulsion almost instantly, and brought on satisfactory and efficient uterine action.

The two last divisions of abnormal labour, comprising *mechanical* and *accidental difficulties*, are foreign to the main object of the present pages. With respect, however, to the *former* of these, it may be assumed that they, together with the various instrumental modes of terminating them, will become comparatively rare, when the above principles of producing vigorous uterine action are energetically pursued.

In the division comprising accidental cases, there is one variety in which the same principle appears to be very interestingly implicated—namely, that most important case, arising from a malposition of the after-birth, which is known by the term of *placenta prævia*, in which, previously to the attendant hæmorrhage becoming seriously alarming, if proper uterine action be induced, as it often may be, particularly by friction and pressure combined with orificial irritation, the hæmorrhage is speedily arrested by the pressure of the child's head acting as a plug, and, at the same time, the case converted into one of normal labour. The author's experience fully justifies him in saying that this mode of treatment always deserves a trial, as it will neither aggravate the case, nor preclude the subsequent employment of any other means which may be deemed necessary.

ON A

CASE OF TUMOUR OBLITERATING THE VENA CAVA, &c.

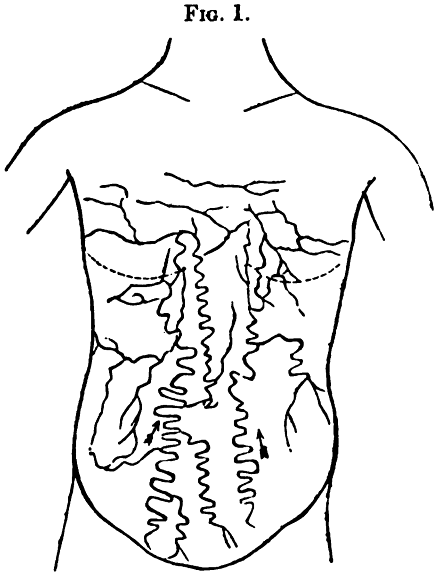
BY WILLIAM J. COX, M.R.C.S., M.B., &c.

THE following case, which recently occurred in my own practice, affords an interesting proof of the mode of action and great extent of the power inherent in the animal fabric, whereby it is enabled to repair its accidental derangements and injuries, or at all events to render them compatible with the continuance of life.

A somewhat similar case is reported by Dr. Watson, in his admirable work. ("Practice of Physic," vol. ii. Article, "Diseases of Veins.") the patient being, in his case, a female, and the cause of the obliteration hydatids of the liver.

E. L——, aged fifty-two, under my care from time to time during the last two years, died last month. His chief symptoms were anasarca of the lower extremities, some ascites, dull pain in the epigastric and left hypochondriac regions, and occasional attacks of vomiting, with dysuria. The egesta have been always more or less mingled with grumous blood, and during his last illness were entirely sanguineous. The urine was highly albuminous, and becoming gradually less

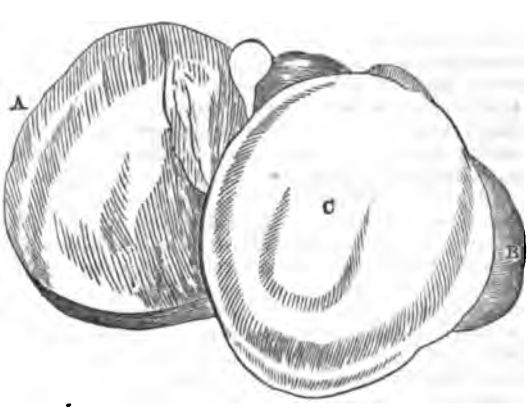
FIG. 1.



THE ABDOMEN EXTERNALLY.

The epigastric and tributary veins, enormously dilated and exceedingly tortuous, conveying the blood by a retrograde course and inosculating with the mammary and intercostal veins. The blood thus at last reached the *superior* instead of the *inferior* vena cava.

FIG. 2.



THE MORBID GROWTH.

The under surface of the liver. A. The right lobe nearly normal in size and structure; B, The left lobe much enlarged and very dense; C, The morbid growth compressing the vena cava, and bound by strong adhesions to left lobe, lobulus quadratus, over the porta, and also to the stomach and intestines. The tumour weighed three pounds.

in quantity. The physical signs were the extraordinary appearance presented by the abdomen, and the evident presence of a solid body occupying the epigastric region. The left hypochondrium and umbilical region were also unusually dull on percussion, and there was total absence of resonance over the spot generally occupied by the stomach.

The autopsy, performed twenty-two hours after death, revealed a large fleshy tumour, connected with the liver, and represented in Fig. 2. The pressure of this morbid growth had obliterated the vena cava inferior to the extent of two inches. There was a small quantity of fluid in the sac of the peritonæum. The vena azygos was somewhat enlarged; the spleen was of enormous size, and almost black from congestion; the right kidney was soft, pale, and flabby; the left was enlarged; the cortical portion mottled and compact; the heart and lungs healthy.

Fig. 1. will sufficiently illustrate the mode in which the blood, diverted from its usual course by so terrible an obstacle, at last reached the centre of the circulation. Of course, the impediment had come on gradually, and so time was given for the development of the collateral supplementary veins.

The symptoms during life were therefore in accordance with what we should expect from the presence of such a growth. The hæmatemesis, I should suppose, may be attributed to obstruction in the branches of the portal system. The gorged spleen may be referred to the same cause.

CASES OF HERNIA.

By Bransby B. Cooper, Esq., F.R.S.

[*Concluded from September No., p. 195.*]

Whatever may be the experience of a surgeon in the treatment of hernia, I think he will be obliged to admit that he has seldom seen two cases exactly resembling each other; there is almost always some difference in the symptoms, some peculiarity in the form of the tumour, or some anomaly in the concomitant circumstances; so that, when at length compelled to resort to the operation, it is generally set about rather as a step of exploration than with confidence as to the physical conditions of the case being perfectly understood. Although the anatomy of the outlets of the abdomen is well known, the course of hernial protrusions frequently deviates from that of the natural channels, so that it is often difficult to ascertain by which outlet the viscus has passed from the abdomen. The difficulties arising from anomalous circumstances attendant upon cases of hernia, are often productive of so much trouble and anxiety to the practitioner, and interfere so materially in forming the diagnosis, that I have thought the following cases may prove useful, as they are illustrative of some of the points most likely to mislead and confound the judgment.

Mr. Potter, of Dublin, related a case of strangulated hernia to me, in which he had lately operated. Upon opening the hernial sac, and dividing the stricture, he was unable to return the protruded intestine into the abdomen. He sent his patient to bed, covering the intestine with linen dipped in warm water, to maintain as nearly as possible the natural temperature of the protruded bowel. Notwithstanding the stricture had been freely divided, all the symptoms of strangulation remained unabated, and in three days the patient died. In a post-mortem examination it was found that the ascending colon had protruded beneath Poupart's ligament into the crural sheath, passing over the ilium, which was so firmly compressed just at the point of its entrance into the cæcum, that the ileo-colic valve was completely closed, and symptoms of strangulation were produced in consequence of the contents of the small intestines not being able to pass into the colon. Upon three or four occasions I have met with a similar difficulty in returning the protruded intestine, after all the steps of the operation had been successfully passed through, up to the division of the stricture. This difficulty probably arose from the distension of the viscera within the abdomen. In one case I found it quite impossible to return the bowel, and I made a slight puncture into it, with the object of setting any gazeous matter at liberty, but I failed in producing the intended effect, as the mucous membrane closed the aperture, which I dared not enlarge. The patient died of peritonitis, and I made up my mind never to try such an experiment again. In a similarly difficult case, I had the patient put to bed, after trying ineffectually to reduce the hernia, and covered the protruded bowel with a large thin poultice. In a few hours the patient had a motion; the bowel was then easily returned, and he recovered. I consider this treatment far safer and more likely to be successful than long-continued attempts at reduction by taxis, puncturing, or any other violent means.

Anomalies of form in herniæ will often produce serious difficulties in the diagnosis. A bubonocele occurring in an invividual in whom the external ring is abnormally small, may, for instance, develop itself not only in the inguinal canal, but also upwards and outwards as high as the anterior superior spinous process of the ilium, so as to present a most unusual appearance for a hernial protrusion.

A servant of Dr. Babington was admitted into Guy's Hospital, with a large tumour occupying the whole space between the anterior superior spinous process and the symphysis pubis, overlapping Poupart's ligament, assuming the appearance of a large femoral hernia; indeed, it was a somewhat doubtful point whether it was femoral or oblique inguinal hernia. The patient was suffering from symptoms of obstruction rather than of strangulation; he was put into a hot bath, and Mr. Morgan succeeded in reducing the hernia, using considerable force in the taxis. The patient perfectly recovered.

I have mentioned that Mr. Morgan reduced the hernia by somewat forcible taxis. This gentleman was in the habit of employing considerable force in the reduction of herniæ; and although I must say that I should not myself adopt this practice, I confess that I have seen Mr. Morgan succeed in returning the intestine in cases in which the amount of force ordinarily employed would have completely failed. Sir Astley Cooper also rather leaned to this comparatively violent treatment. Some time ago Sir Alexander Crighton told me that in Russia it is an almost universal practice to force herniæ back by the taxis; and although by such measures they occasionally rupture the intestine, the general success is very considerable. Personally, however, I should never recommend such a practice, and should always prefer resorting to the operation in cases were a moderate amount of force is insufficient to secure the return of the protruded bowel.

A woman, aged seventy-two, the mother of several children, was admitted into Guy's Hospital, with severe symptoms of strangulated hernia, which had commenced three days before. She had had a rupture for several years. When she was examined, a tumour was found in the left inguinal region; it had all the appearance of a bubonocele, and the finger could be placed on the spine of the pubis under the tumour, which circumstance might in itself almost have been considered a conclusive proof of its being an inguinal hernia. Upon close examination, however, the tumour could be felt issuing from the saphenous opening of the fascia lata, showing its femoral origin; the anomalous appearance of the hernia was, however, manifest to all who saw it. The operation was immediately proposed in this case; but the patient would not submit to it until the next day, when I operated; the sac could not be emptied without being laid open, when a large quantity of omentum was found in it, with a knuckle of intestine behind, entangled in the omentum. This was probably the reason why it was necessary to open the sac. Upon passing my finger to the stricture, I could feel the epigastric artery beating forcibly immediately across it. In consequence of this I was enabled to divide the stricture without wounding the artery, which I could not have done had I not felt the vessel pulsating. After dividing the stricture, I easily returned the intestine; a portion of the omentum was removed, and the patient was put to bed. It was two days after the operation before any motion passed, but the patient recovered without a bad symptom.

On the 30th of October, 1846, a woman, aged forty, (mother of eight children,) was admitted into the hospital with acute symptoms of strangulated femoral hernia. She had had hernia for four years; it had frequently come down, but she had always been able to return it. On the 28th instant, the hernia suddenly descended as she was coming down stairs. She was immediately seized with vomiting and a sensation of tightness across the scrobiculus cordis. The tumour was peculiar in form: instead of being of the usual shape of a femoral hernia, it was much elongated outwards, running under and parallel with Poupart's ligament, reaching almost as far as the anterior superior spinous process of the ilium. The elongated portion was extremely moveable, and felt as if it were immediately under the skin, but it could not be pressed towards the crural ring. It was difficult to believe that the coverings of the hernia could have so prolonged themselves, and it was, indeed, doubtful if there were not some adventitious swelling unconnected with the hernia. As the symptoms were very urgent, I proposed to perform the operation immediately. The patient consented, and I commenced with a vertical incision in the seat of common femoral hernia. I made a second incision at right angles to the first. On dividing the skin and superficial fascia, I exposed the internal abdominal fascia, (the fascia propria of Sir Astley Cooper.) The incision was continued outwards over the prolongation of the swelling. I divided the fascia in the same direction as I had previously divided the skin. The hernial sac was thus exposed; and it was continuous with the whole of the swelling. I next divided the stricture, and the sac became immediately quite flaccid. In consequence of the anomalous form of the tumour, I determined, however, upon opening the sac, in order to ascertain the nature and condition of its contents. I found in it a knuckle of intestine, elongated in the direction corresponding to the tumour; it was quite healthy and fit to be returned into the cavity of the abdomen. A few hours after the operation, the patient had a free evacuation, without the use of a purgative. This patient also speedily recovered.

Oct. 15th, 1851.—I was called to a case of hernia by Mr. Thornton, of Museum-street. The patient was housekeeper to a lady in St. James's-place. She was fifty years of age, and when I saw her had been suffering for three days from strangulated hernia. She was very sick, but there was no other urgent symptom; no pain nor swelling of the abdomen; the countenance not distressed; and the pulse full, soft, and compressible. Upon examining the tumour I found it large and flaccid, extending down the thigh. It had the appearance, and was about the size of a calf's bladder, partly filled with fluid. By pressing the fingers deeply into the tumour, a substance very similar to intestine or omentum could be felt. This could be traced under Poupart's ligament. I could not succeed in reducing the swelling by the taxis. The patient stated that the hernia, which had existed for about five years, was sometimes twice as prominent. There was a second tumour, of small size, above Poupart's ligament. This was pendulous. and of the size of the end of the little finger. It had the appearance of a ventral hernia, protruding between the separated tendinous fibres of the external abdominal oblique muscle. I ordered a large dose of opium, ice to be applied to the tumour, and a castor-oil enema to be given. The next day the sickness was less urgent, and there was no aggravation of the other symptoms. I, however, recommended the operation, but to this the patient would not consent. On the following day she still remained much the same; but as there had been no relief to the bowels, I urged that the operation should be performed immediately. As the patient now began to feel that her situation was critical, she agreed to submit to it. I commenced my incision from the upper tumour, continuing it downwards below Poupart's ligament, as far as about the centre of the lower swelling, cutting through the skin and superficial fascia, exposing the free edge of Poupart's ligament, as well as the protrusion of the upper tumour through the tendon of the external oblique muscle, as I had expected. I next proceeded to explore the upper swelling, and for that purpose opened the sac. I could see nothing but omentum. I then divided the opening through which it had passed, and Poupart's ligament; this showed that the upper swelling was merely a portion of the lower, as they were now rendered quite continuous. I opened the sac of the femoral tumour, and found a large quantity of omentum, and, lying behind it, a knuckle of four or five inches of intestine. I then divided the stricture, and as the intestine, with the exception of slight congestion, was quite healthy, I returned it into the cavity of the abdomen, leaving the omentum within the sac; the edges of the wound were brought together by suture. and the patient put to bed. She said that she was relieved from all sensation of constriction. On the 16th, she had a free evacuation of the bowels, the sickness had entirely subsided, and the pulse was quite natural. On the 17th, purging came on, she was very much flushed, and symptoms, which were almost those of mania rather than delirium, supervened. This might perhaps have arisen from an hereditary tendency, her mother having died mad. I have observed, in other cases, that delirium followed upon omentum being left in the sac; but in those the omentum sloughed, which did not happen in this case. After the 17th, the patient went on improving; the wound healed rapidly, almost entirely by first intention; and on the 27th I left her quite cured.

Anomalies in the form of a hernia may, as I have said already, render it very difficult to diagnose with accuracy the nature and direction of the protrusion, but anomaly of form is not the only source of difficulty; the circumstances concomitant with the hernial protrusion are sometimes sufficient to mislead the judgment very materially. I have selected the following cases to show how far accompanying symptoms may interfere with the diagnosis of hernia.

In May, 1838, Mr. Callaway was sent for to a case of inguinal hernia, on the right side of a lady, aged 36. The hernia had descended only the day before, but it had existed for nine years. The symptoms being urgent, Mr. Callaway determined upon operating immediately. On opening the sac he introduced his finger through the internal ring, and returned the protruded intestine, which was quite healthy. As soon as the intestine was returned, a fluid escaped by the opening in so large a quantity that it was thought at first that the bladder had formed the protrusion, and had been wounded; it was soon, however, seen that this was not the case, for the fluid coagulated on the sponge used in wiping it away, and when a portion was collected in a wine-glass it separated into a clot, which precipitated, and a serum which remained on the top: it also coagulated by the application of heat. These circumstances seemed to show that it was an ovarian cyst which had been opened. Soon after the operation the bowels were relieved, and the patient recovered.

In the last case I have mentioned hernia of the urinary bladder; this is not a common occurrence; I have seen but one case, of which I have published a description.* In this case the bladder protruded through the external ring, and then passed partly downwards into the scrotum, and partly upwards into the inguinal canal, so as to give it a very anomalous appearance. The interference with micturition, and the absence of any evidences of intestinal obstruction led to the formation of a correct diagnosis in this case.

In June, 1846, a country practitioner related to me the particulars of the following case:—He was called in to see a female who was suffering from all the symptoms of strangulated femoral hernia, which had existed for three days. Upon applying the taxis the tumour was found to be fluctuating and very tender to the touch. The patient stated that she had had a rigor a few days before. The surgeon therefore came to the conclusion that the swelling was an abscess; he consequently opened it, and let out a considerable quantity of pus. The symptoms of hernia were not, however, relieved, and continued, indeed, until the patient died. In the post-mortem examination a hernial sac was found lying behind the abscess; it contained strangulated intestine. This case offered very considerable difficulties, and it shows the necessity for invariably exploring a tumour existing in the seat of a hernia, if there exist concomitantly with other symptoms any indications of insuperable visceral obstruction.

In September, 1846, a man was brought into Guy's Hospital, suffering from what were supposed to be symptoms of strangulated hernia. A large scrotal hernia was found, which had been down for three days. The patient stated that he had had the rupture twenty years, but that he could always reduce about two-thirds of it himself, leaving, however, a tumour in the scrotum. When the man was brought into the ward, I remarked the extraordinary blueness of his face. I found his pulse very feeble and the extremities cold. I ordered a hot bath and a castor-oil enema, and three grains of opium, as soon as he came out of the bath. After the bath I again saw him; his extremities were still cold; pulse not to be felt; the vomiting, distress of countenance, and blueness remained unchanged. Ordered wine and brandy. In an hour after his admissed he died. I did not propose the operation, as when the man was brought into the hospital he was *in articulo mortis*.

The day after his death, I examined the body. I proceeded as if going to operate for strangulated hernia. I did not lay open the whole length of the sac, but merely cut down to the neck to liberate the constriction, if any existed. I could not, however, find any. I then proceeded to examine the contents of the sac. I found in it black intestine in large quantity; unfolding this, an adventitious cord of lymph was found, which was quite firm and fibrous; it encircled a large knuckle of intestine, producing the strangulation. Had I operated in this case, I believe I should not have discovered this adventitious constricting band, but have been satisfied with removing any constriction about the neck of the tumour, as is usually recommended in large herniæ. This case is in this respect very instructive; it shows that in all anomalous cases we ought to examine into the state of the bowel, even although we may subsequently determine not to attempt to return it into the abdomen. The adventitious band of lymph was of very long standing, and, I have no doubt, had formed within the abdomen, and had come down into the scrotum with the protruded intestine.

The patient's account of his own case, in which he stated that he could only return part of the tumour, was proved to have been quite correct, as he was the subject of a hydrocele, which of course could not be returned into the abdomen with the hernia.

A gentleman, aged forty, a patient of Mr. Toulmin, was seized with symptoms of strangulated hernia. Upon one or two occasions before, he had had symptoms of the same kind, with a fulness in the right inguinal region, which gave way to the application of the taxis. A truss could not, however, be applied in this case, as the testicles had not descended into the scrotum.

On the 19th July, 1847, symptoms of strangulation again appeared, accompanied as before by swelling in the right inguinal region. The tumour was partially reduced by the taxis, but the symptoms remained unabated. I was then called in, and after careful examination of the patient, proposed to lay open the right inguinal canal. I performed the operation on the evening of the 23rd inst. No strangulated intestine was found, but what was supposed to be the spermatic cord was seen lying in the canal. The patient was not relieved in any respect by the operation; the constipation and other symptoms remained, and on the 24th he died.

The body was examined after death; upon opening the cavity of the abdomen, the intestines were found to be deep in colour, and glued together by recently effused lymph; the testes were at the external rings. The left internal ring would easily admit the little finger into the inguinal canal, which contained nothing abnormal. Upon laying open the right inguinal canal completely up to the abdominal cavity, the appendix cæci was found passing through the internal ring into the canal, and terminating by a bulbous extremity which adhered to the testis; the spermatic cord passed behind, and was covered by the appendix cæci. About eighteen inches of the ilium, several portions of which were empty and constricted, forming numerous intricate convolutions, formed a mass, which was firmly adherent to the rectum, and filled the pelvis; upon separating this mass, pus flowed out.

It was quite evident that this patient had been the subject of peritonitis, creating adhesions which had interfered with the action of the implicated portions of bowel, and produced the insuperable obstruction which had been attributed to the tumour in the right inguinal region.

Oct. 6th, 1851, I was sent for to Watford, to operate on a patient who had had a small femoral hernia for three years. Four days before, a fresh portion of intestine had come down, immediately upon which all the symptoms of strangulation had come on. I attempted to return the tumour by the taxis, but failed; I therefore proposed to operate at once. The moment I had divided the internal abdominal fascia, the tumour became flaccid, but I could not empty the sac, which I consequently determined upon opening; in attemping to do this the whole hernial protrusion slipped up into the abdomen, *en bloc*. I made every effort to bring it down again, but could not succeed; and as the patient was relieved from the pain and sickness, and the expression of the countenance was much improved, whilst the pulse became stronger and more regular, I felt some confidence in the hope that, in passing up, the intestine had liberated itself. The patient died, however, on the fourth day, the bowels not having been relieved, and there can be no doubt that the knuckle of intestine was returned into the abdomen in its constricted state; that, in fact, the external was converted into an internal strangulated hernia. The friends of this patient would not permit a post-mortem examination to be made.

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* Vide Lectures on Surgery, p. 476.

The following case I think worthy of notice, from the difficulty there was in detecting the existence of any external tumour—in fact, in diagnosing whether the patient was the subject of an external or an internal hernia:—

On Feb. 17th, 1852, Mr. Ward, of Watford, sent for me to see a patient, a lady about forty-five, who had suffered for four days with urgent symptoms of strangulated hernia, but he could not detect any external tumour. My attention being excited, I proceeded to examine the patient with increased care, and at last suspected I felt a small, circumscribed hardness in the left thigh, in the seat of femoral hernia; the patient experienced greater pain on pressure in that part than on the corresponding side, and I determined, under the impression resulting from these facts, to propose the operation at once. She consented; and on laying open the femoral sheath, I discovered a small rounded protrusion, not larger than a marble; I then opened the sac, divided the stricture, and returned the small knuckle of intestine into the abdomen. I immediately gave the patient a grain and a half of opium. All her symptoms were alleviated; she had two evacuations the next day, and recovered without a bad symptom.

The next case affords a subject for reasoning in quite a different manner to the last. In this we observe symptoms of hernia, with an evident hernial tumour, but the nature of those symptoms showed the impropriety of surgical interference; while the last case demanded exploration, although the physical conditions tended to forbid it.

August 27th, 1850, I had a patient at Guy's Hospital, a young man, the subject of an inguinal hernia on the left side; the tumour was small, tense, and painful, but he had not been sick, nor had any other symptom of strangulated hernia, beyond constipation, attended with a general tenderness over the left iliac region. The state of his pulse and expression of countenance led me to suspect that he was the subject of peritonitis, and I therefore determined to try constitutional means before I proposed any operation. I ordered the patient to be put into a hot-bath, twenty leeches to be applied in the left iliac region, ice to the tumour, and gave him a grain and a half of calomel and half a grain of opium every three hours. On the 28th the pain in the abdomen was much relieved, the tenderness of the tumour nearly gone, and it had become small and quite soft; a purgative enema was administered in the evening, and during the night he had free evacuation. From this period he recovered, but was kept in the hospital in the recumbent posture; ice was applied to the tumour; and in the course of a week or ten days the hernia was reduced, a truss applied, and the patient got quite well.

The case with which I shall conclude this series of cases of hernia, is one in which the rupture occurred in an individual of hæmorrhagic diathesis, a circumstance which gave rise to some peculiar and anomalous symptoms:—

James C——, aged twenty-nine, by occupation a cab-driver, came into the hospital in December, 1850. He was a man of very intemperate habits. Ten days before, he had been admitted under Mr. Cock, suffering from symptoms of strangulated hernia. At that time he had a warm bath, took opium, and had ice applied to the tumour; after which, Mr. Cock succeeded in reducing the hernia, and the patient left the hospital quite relieved.

Upon his second admission under myself, he stated that he had been ruptured about four years. The hernia had been down about six hours, and the symptoms of strangulation were very urgent. Taxis, warm bath, full doses of opium, and ice to the part, were all tried, but the hernia could not be reduced. The treatment was persevered in without effect for twenty hours. It was then determined that the operation should be performed without further delay. The operation was attended by an unusual diffused hæmorrhage; the sac was opened, and about eight inches of small intestine found protruding. This was of a dark red colour, and congested. It was returned with considerable difficulty. The next morning, symptoms of peritonitis showed themselves, and in spite of treatment with calomel and opium, leeches and poultices, it continued to increase, until the patient sunk, about forty-eight hours after the operation. After death, the body was examined. There was considerable ecchymosis around the leech-bites upon the abdomen, the superficial veins all over the body were distinct and prominent, and dark blood was escaping from the mouth and nose. Upon cutting into the lungs, they were found curiously mottled, as in pulmonary apoplexy. Bloody serum was found in the cavities of the pleuræ and pericardium; about two pints of clotted blood were found in the cavity of the abdomen, leading Dr. Lloyd to suspect that the epigastric artery had been wounded; the artery and vein were injected, but they were found to be intact; kidneys healthy; liver pale. From the appearance of the tissues generally, and from the statement of his friends, that in his lifetime the slightest cut was attended with severe bleeding, and that his flesh was easily bruised and became black and blue, it was evident that this patient was the subject of hæmorrhagic diathesis.

REPORT OF A

CASE OF CATALEPSY,

ILLUSTRATING SOME

NEW PRINCIPLES OF TREATMENT IN CONVULSIVE AND SPASMODIC DISEASES.

By C. B. Radcliffe, M.D., L.R.C.P.

William B——, aged twelve, residing with his parents at Shepherd's-bush, Bayswater, was seized on the 1st of February last with a painless rigidity of his fore-arms and hands, which lasted without any interruption, from tea-time, when it first made its appearance, until bed-time. Similar symptoms also recurred daily for many days, sometimes beginning early in the morning and lasting throughout the day, at other times merely showing themselves for a few minutes, while the patient was preparing for bed; and so they they continued to do until the 28th, at which time they extended to the feet and legs, and in a less degree to the upper arms, thighs, and trunk, consciousness being now completely suspended, which was not the case previously. These general symptoms, which were evidently those of catalepsy, alternated with the more partial symptoms, occurring several times in a single day, and recurring throughout the whole of the next week, at the expiration of which period the case was brought to me.

During all these fits, partial or general, the rigid parts were cold,—so cold as to cause some of the bystanders to say they were dead. Cold, also, had evidently much to do in the matter as an efficient cause. In the earlier stages of the affection, playing out of doors (the weather at the time being very severe) invariably sent the patient into the house crying, with his hands and forearms immoveable; and the exposure caused by undressing in a cold bed-room at night gave rise to the same symptoms. On the morning on which he was brought to me, also, the cold had acted in the same manner, and it was not until he had been some time seated in the warm room that the stiffening relaxed. I had thus an opportunity of satisfying myself that the parts which had lost their pliability were in reality cold, and that the pulse in them was almost extinguished, and the sensibility all but departed. I had the opportunity of satisfying myself also that this depressed condition extended more or less to the system generally, and that all the mental and bodily functions were as far as possible removed from anything akin to excitement.

The other facts in connexion with this case all denoted the want of real power. He was anything but precocious,—not walking for two years, and not talking for a year later, and now speaking with hesitation, —very slow in apprehension, feeble in memory, and, though twelve years of age, as irritable, uncertain, and fretful as a child. His head is large; his eyes staring, and their pupils dilated and sluggish; his complexion sallow and venous; his hand cold and clammy; his pulse slow (70) and feeble; his body prominent and hard; his appetite voracious. The body, moreover, is covered with boils; and it is further to be observed that the symptoms first showed themselves after the inherent feebleness had been further depressed by a severe cold. Both parents appear to be healthy, but a cousin of the mother suffered from fits of a similar character, and lost her life in one of them, by falling from a foot-bridge into a brook.

Acting upon received views, that *increased* irritation in the chief nervous centres had to do with the muscular rigidity, Mr. Roy, of Brook-green, had tried the usual course of leeches behind the ears, blisters to the nape of the neck, low diet, mercurials, hot mustard fomentations to the feet, and so on; but finding the symptoms becoming more general and confirmed, he sent the case to me.

The treatment I pursued was in accordance with the opinion I have set forth in these matters, that muscular contraction, whether normal or abnormal, is itself the sign and consequence, *not of increased, but of diminished innervation and vitalization*. I therefore recommended that the patient should be kept *still*, and as warm and comfortable as possible; that animal food and good table-beer should be given him freely; that he should be undressed before the fire, and carried to bed wrapped in warm flannels, having been first for some time immersed in a hot bath; and that he should take every few hours a small teaspoonful of spirits of turpentine, with ten drops of aromatic spirits of ammonia, mixed up with a part of the yolk of an egg, in a little ginger wine.

A fortnight after this first interview, I saw the patient again, and found that the draught had occasioned a little irritation in the bladder, but so little that there was no necessity to discontinue the remedy. On the other hand, it had put a stop to a troublesome and old-established habit of micturating in bed. As to the rest, there was a material improvement in every respect, the countenance being brighter and more energetic, and there having been no cataleptic rigidity from the day the stimulant and nutritive plan of treatment had been put in practice.

I saw the patient no more, but I learned from the mother who called to thank me two months subsequently, that the treatment had been carried out for a month longer, that the fits had never returned, and that he was in better health than he had ever been before.

ON OVARIAN DROPSY TREATED BY PRESSURE, &c.

By I. B. Brown, Esq., F.R.C.S.,

Surgeon-Accoucheur to St. Mary's Hospital.

(Concluded from August No., p. 114.)

General Observations on Treatment.

The object of this present paper is to detail some general practical observations on the treatment of ovarian disease, drawn from the consideration of the several cases published by myself or by others.

Not many years have elapsed since the doctrine was, that ovarian dropsy is an incurable disease, to be met only by palliatives to render the afflicted patient's existence more tolerable. But latterly the pendulum of medical opinion has rather swung to its opposite extreme; for instead of the *laissez faire* plan finding favour, that of too general interference by operation has characterized the present day. Cases of ovarian dropsy, have, so to speak, been hunted up, and formidable operations resolved on for them almost indiscriminately, without the due guidance of a careful diagnosis, or of a clear insight into their pathology.

Certain it is, indeed, that though diagnosis and pathology can be the only safe guides in deciding on the treatment of ovarian dropsy, yet the former is in some instances obscure, and the latter, in many respects, but imperfectly understood. But withal they will together enable us to proceed with tolerable success. It is to an advance in our knowledge of the pathology of ovarian cysts and their contents, that I would especially look for an increased improvement in the management of ovarian dropsy, and for data to decide on the amenability to treatment, as also on the special mode to be adopted in particular cases.

To arrive at a safe conclusion as to our line of practice, we have to consider the age and health of the patient; the duration and cause of the malady, and the affections supervening upon it; the previous treatment resorted to; and, with respect to the cyst, its nature, whether single or multilocular, or malignant; and the character of its contents, physical, chemical, and microscopical.

Ovarian disease rarely affects those under the age of puberty. I have mentioned one instance, (see The Lancet, 1848;) but after the appearance of the menses, from the sixteenth or seventeenth year, throughout the child-bearing period, and particularly at its climax, and even at and after the "change of life," though then much less so, ovarian dropsy is a not infrequent disease. It also attacks both the married and the single. *Cæteris paribus*, youth is more favourable to its cure.

Where the health is shattered, or where any organic malady exists, it has the prior claim on our attention, before proceedings specially directed to the ovarian malady; for, be the operation what it may, it can neither be warranted nor successful without at least a tolerably good, healthy condition.

Where any fatal organic disease of a vital organ, as the heart, lungs, kidneys, or liver, is present and advancing, operative measures are contra-indicated, and palliatives must be our only resource. But where such impediments to special treatment are wanting, any remediable malady must be relieved; and where there are general debility and deprivation of health, depending on sympathy with mechanical disturbance from the ovarian disease, or on previous treatment, as by drastic purgatives, diuretics, &c., benefit is to be sought by the use of tonics, especially of preparations of steel; whilst remedial measures directed to the cure of the cyst may probably be simultaneously employed.

Ovarian dropsy has numerous concomitants originally resulting from it, more or less involving the general health of the patient; most of them have a mechanical origin from the pressure of the sac acting directly or by sympathy. Thus the cyst, by its upward pressure against the diaphragm, causes great dyspnœa, interruption to the pulmonary circulation, and a tendency to syncope; it also sympathetically disturbs the stomach, producing indigestion, nausea, and vomiting; whilst the heart becomes subject to palpitation. Its pressure, again, obstructs the circulation and secretion of the kidneys, and, I believe, also lays the foundation of organic disease in them; the same cause affects the liver similarly, creating congestion and enlargement; in the pelvis it is seen to cause displacements of the uterus, as procidentia uteri; to obstruct the action and circulation of the lower intestine, and so to lead to prolapsus ani, to hæmorrhoids, and to ulceration and fissure of the anus; and lastly, it produces a frequent desire to empty the bladder. In the majority of cases the catamenia persist.

Other accompaniments of ovarian dropsy depend on the actual weight of the tumour, causing various uneasy sensations, as of a dragging from the loins, with pain in the back and side, and often with nausea, and a general feeling of weariness.

The preceding effects, co-existing in greater or less number, may have so seriously damaged the constitution, by their severity or duration, as to have destroyed the prospect of cure; and thus, without reference to the disturbance caused by those effects, the duration of the ovarian malady cannot be used as a criterion in judging of the amenability to treatment.

This last point depends also on the cause of the ovarian dropsy, whether acute or chronic ovaritis, its most common preludes, or otherwise.

Again, in concluding on our plan of treatment, we have especially to investigate the nature and relations of the diseased ovary. The first thing to discover is, whether the disease is simple or multilocular; and if the latter, whether it is composed of simple sacs, or has solid tumours adherent. The apparently solid tumours, are oftentimes younger, unfilled, or undeveloped cysts, and will too frequently advance, even when by treatment we have overcome the primary sac.

The next point is to find if the sac be adherent anywhere, and if so, the extent and degree of adhesion. The result of this investigation will greatly determine the future treatment. If the sac be simple, and the health tolerably favourable, the plan by pressure, diuretics, &c., should be tried, and, as I think, the cases I have already published will bear me out in saying that a cure may often be anticipated from it. Even where the case is multilocular, or otherwise unfavourable, pressure not unfrequently is beneficial, and at all events retards the progress of the malady.

But though we may by general examination make out the uni- or multi-locular character of the sac, the presence or absence of adhesion, and in some degree the nature of its contents, their density, &c., yet our diagnosis will be much more secure upon puncturing the cyst and examining its fluid; and if doubt remains as to future proceedings, even an exploratory incision may be made.

It has been made an objection to my mode of treatment by pressure, that the operation of tapping which it involves renders the subsequent recourse to ovariotomy impossible, or nearly so, on account of the adhesions formed about the seat of puncture. This objection is, however, overruled by experience; for in the majority of cases, where an opportunity of future examination offers, no such adhesions are produced; that is, adhesion of the sac to the abdominal parietes is no necessary consequence of paracentesis abdominis; where it does happen, some peritonitis must have supervened upon the operation.

I have just stated that even an exploratory incision through the abdominal wall and peritonæum down upon the cyst may be made, in some cases, where we still remain in doubt as to the ultimate operative proceeding indicated. I know that the ordinary impression is, that any incision made into the peritonæum is a matter of great moment and hazard, and such as should not be practised under the circumstances I have supposed. But this notion the result of my experience does not bear out. I have made such incisions at least a dozen times in carrying out the treatment of ovarian dropsy, or of other abdominal lesion, and have never been troubled with any ill consequences. It may be surmised that in cases where the peritonæum has been much stretched by abdominal tumours, it takes on a diseased process less readily than when in the normal state; indeed, I am inclined to believe this to be the case.

An exploratory incision will be rarely called for, except in cases where treatment by pressure and tapping has been resorted to and failed, and some further operation is determined upon. When desirable, the incision will be best made in the semilunar line, and may be two or three inches in length. Supposing now that by our examination we have discovered the cyst to be simple and non-adherent, and that pressure has been already tried unavailingly; we may tap again, and endeavour to withdraw the entire sac, according to Mr. Jefferson's proposal, or empty the sac, and then cut a piece out of it and return it. Again, supposing adhesions to be wanting, but the cyst multilocular, and progressing in development in spite of other modes of treatment, we still have ovariotomy as a *dernier ressort*, supposing this not contra-indicated by the state of health of the patient, nor by the nature of the sac or of its contents.

If the ovarian sac be adherent, we have yet another operative proceeding to fall back upon—viz., that of forming what I have termed an "artificial oviduct;" in other words, making a fistulous opening into the sac, through which it may constantly discharge itself, and finally slough away. From this operation I yet anticipate the best results; its principle seems incontestably good; and although I cannot refer to it as having altogether made a successful cure, yet it has produced sufficient benefit to induce me, on a future favourable opportunity, to repeat it, and at the present time to recommend it to my unprejudiced readers. The operation in question is available, though in a less degree, in the case of multilocular disease; but, like all the others, it must not be performed on a shattered constitution.

I come now to the consideration of the cyst itself and of its contents, upon which particulars our treatment must greatly depend.

In some cases the cyst is found of great hardness and density, or it is the subject of the so-called cancerous or malignant disease; but which, according to observations I have made, cannot be rightly so designated. Where such conditions are present, the idea of operating must be laid aside, for no good can come of it. The cyst cannot take on healthy action and absorb future formations of fluid after its previous evacuation, and any process it may set up will be of a morbid character; whilst the health will sink under any plan of treatment involving a drain from the system by suppuration.

Of the fluid contents of ovarian sacs, the most favourable is the limpid, pale, straw-coloured liquid, containing very little albumen. This chiefly occurs in simple cysts, or in the newly-developed appended ones of multilocular sacs.

Unilocular ovarian disease, having fluid with such characters, is very amenable to any plan of treatment by pressure, &c., and the earlier that plan is adopted the better; for by long persistence—for example, as a rule, above three or four years—both the tissue of the sac and its contents undergo a change. An ovarian sac, like abnormal tissues in general, is prone to diseased action, and is often the subject of inflammation, which sets up adhesions, increases the density of its walls, and of its fluid also, by augmenting the albumen. In some instances, where the sac is of old standing, or has been the subject of oft-repeated morbid action, or especially after it has once been punctured, the fluid will often get mixed with altered blood, and so obtain a coffee-ground colour. In other cases the fluid undergoes still greater changes in colour and consistence; it becomes grumous, of a deep-brown or even inky-blackish colour, and, though rarely of a treacle-like consistence; not unfrequently solid albuminous flakes are mingled with the fluid.

Wherever, by tapping, a sac has poured out such contents, differing so considerably in colour, consistence, and density from the common thin serous fluid, it is wrong to interfere by any severe operation. Such fluids show a very morbid condition of the cyst, and also imply a very great deterioration of the blood, and consequently of the health; for I am disposed to believe this drain of albumen from the blood into ovarian sacs operates as injuriously upon the general health as albuminuria itself.

The colour of the fluid is not *per se* sufficient for diagnosis; the density must be ascertained, and chemical tests be applied for the albumen. This substance is occasionally present in clear, pale cyst-contents, in very considerable quantity; so much of it, I have witnessed, as to almost solidify like an egg upon boiling. Where albumen, therefore, is in so great abundance, our treatment must rather be palliative, and pressure after tapping is the most effectual palliative for such cases, retarding, as it will even in them the fatal progress of the malady. The density of the contents of a sac is sometimes so great that it actually feels like a solid body, fluctuation even not being perceptible.

More precise chemical analyses of the fluid of ovarian dropsy are extremely desirable, for I anticipate from such some certain rules of diagnosis and indications of treatment. Similar accuracy, and very extended observations, are wanting to render our knowledge of the microscopical characters of the tissues of ovarian sacs and of their contents at all available for practical purposes. These matters I am not negligent of in my inquiry into the pathology and treatment of ovarian dropsy; and I may add, that I have also had the blood and urine, in some cases of that disease, examined both microscopically and chemically; but these investigations have not yet been sufficiently pursued to warrant the introduction of their results.

Sufficient has been said to show that it would be folly to insist upon any one of the modes of treatment devised at the present day, as generally applicable in ovarian dropsy; but that, on the contrary, a particular line of treatment must be selected in each individual case, according to its symptoms and pathology.

Hence the general tables which have been drawn up to show the special advantages or the defects of particular methods of operating, are deficient in value. Thus, with respect to ovariotomy, they give no fair representation of its results, for, in probably the majory of cases, that operation has been performed when too late to be of service. The same remark applies with reference to my mode of treatment by pressure, &c.; that mode can be successful only under particular circumstances, and the increased experience I have obtained has brought me to a useful knowledge of those circumstances, so that any detail of a number of future cases, equal to that already published, would, as a natural consequence, be a more accurate representation of the results to be expected from its adoption.

ON CARBUNCLES AND BOILS,

WITH ESPECIAL REFERENCE TO THEIR PREVALENCE AS AN EPIDEMIC.

By Thomas Hunt, F.R.C.S.

Surgeon to the Western Dispensary for Diseases of the Skin, etc.

It is one advantage resulting from the Registration Act, that by recording the number of deaths occurring from any fatal epidemic within a given period, it furnishes evidence of the rise, progress, and decline of the visitation. It is now well known to the profession that a class of diseases has recently prevailed, to which the name of "the furunculoid epidemic" has been given, consisting of carbuncles, boils, whitlows, pustules, and superficial collections of purulent matter. But if the readers of The Lancet were asked how long the epidemic has existed, to what extent has it been fatal, and to what locality has it been confined, but few of them would be able to give a satisfactory reply to any one of these very important questions. A solution of one of them may be found by a diligent examination of the Registrar-General's reports, touching the number of deaths from carbuncle and phlegmon, in the metropolitan districts during the last twelve years, and the geographical extent of the epidemic may be gathered from the casual notices of its existence which have recently appeared in the various medical periodicals.

The inquiry cannot fail to be interesting in its results; and I propose in this paper, and those which may follow, to trace the history of the epidemic, to note its progressive fatality, and then to offer a few practical observations on its pathology and treatment; and it will be shown, that although this pestilence has occupied but little of public attention, it has been more extensively fatal than any one would have suspected; that it has existed for several years, increasing in intensity up to the present year, if not to the present month, and that, unlike other epidemics, which usually traverse a portion of the globe, not contemporaneously but consecutively, this disease has existed at one and the same time, certainly in the four quarters of the globe, and probably in every country on the face of the earth.

My own attention was first called to the disease about the commencement of the year 1849, when I had occasion to remark that chronic eruptions of the order Pustulæ had become unusually common, especially among a class of patients not frequently affected in this way—namely, the well-fed; their eruptive diseases being generally confined to the orders Vesiculæ, Squamæ, and Papulæ. I had also observed that in a patient under treatment for lepra or psoriasis of long continuance, the scales would disappear, and a crop of pustules would spring up in their place. This is no very unusual thing at any time, but the frequency of the occurrence arrested my attention. The next thing I observed was, that the superficial whitlow became very common. In one patient not less than seven fingers, and in another five, became affected in succession with this disease. In the course of three months about twenty patients consulted me in my private practice, with a collection of purulent matter immediately under the dermis, near the matrix of the nail, or at a short distance from it, in one, two, or more fingers of both hands, and in some instances occupying the palm. Shortly after this, boils and carbuncles were brought much more frequently under my notice than usual; some of the latter were of alarming character, though none of them fatal. These painful affections appeared to be very capricious in selecting their locality, scarcely any part of the body being passed over, excepting only the legs and feet. One patient, a middle-aged lady, had a carbuncle on the back of her neck, the inflammation extending around the throat up to the apex of the occipital bone, and down to the dorsal vertebræ. Another female had an immense furuncle on the os coccygis; a third on the right labium; and a fourth, a young lady aged seventeen, had the whole abdomen covered for several weeks together with a succession of boils and ecthymatous pustules. A gentleman had a carbuncle on the scalp of prodigious size, in the year 1851, and in the spring of 1852, very recently, another still larger occupying a different portion of the scalp; another patient had one on the thigh; a third in the axilla, which appears to be a very common locality; a fourth on the mastoid process; a fifth on the throat, near the larynx; and several on the buttock. A servant girl having been under treatment for an eczematous eruption on the wrist, upon the disappearance of this disease, presented the fore-arm covered with furuncular abscesses. Several females presented themselves with pustules and boils on the forehead, ears, eyelids, sternum, mammæ, and indeed on almost every part of the body, the face not escaping. At present, however, I have not met with a single case of carbuncle or boil below the knee, although pustules have been observed on the legs, and boils are very frequently seen on the thighs.

Although the seat of this epidemic is the skin, and subcutaneous tissues, it has by no means the character of a purely local disease. The health has in most cases suffered more or less before the breaking out of the disease and during its progress; and in several cases in which it has persisted for some weeks, successive crops of boils or pustules appearing in different parts of the body, a restoration of the general health of the patient has appeared to be the signal for the final disappearance of the local affection. The impaired health which has accompanied the disease has been various in character and duration; but its prevailing type has been general and local debility, and a feeble, sluggish action of the heart and arteries. Many patients have complained of a slight degree of giddiness, a few of headache, and several have mentioned an indescribable sense of oppression at the præcordia, a general feeling of languor, and inaptitude for bodily or mental exertion, and an unusual degree of fatigue, sometimes amounting to faintness, from a very moderate amount of muscular effort. The pulse has generally been feeble and slow, thus denoting the cerebral symptoms to be indicative rather of deficient energy in the circulation than of plethoric congestion of the brain. A degree of hoarseness, such as accompanies typhus fever and hæmorrhagic atony, and other exhausting diseases, has occasionally accompanied the attack. The voice appears to take a higher pitch, and to have lost its fulness and mellowness. This has chiefly been noticed in men. All these symptoms tend but to one conclusion—viz., that the furunculoid, like all other epidemics, is attended by a deficiency of power in the system. The worst case of carbuncle I have yet met with occurred in a lady, whose strength had been reduced by long anxiety, reverses, and misfortunes, and want of sufficient nourishment. The poor and ill-fed have been the most frequent, as well as the most severe sufferers; and a medical gentleman who is largely engaged in practice among the higher classes, has recently assured me that he was not aware of the existence of any epidemic, and that he certainly had not observed a more than average number of carbuncles and boils among his own patients. Like all other epidemics (which usually spend their strength upon the asthenic portion of society,) this affection does occasionally attack persons well-fed and apparently in the full tide of health and strength. And it is worthy of observation that medical men, who usually appear to be exempted, as if by a special providence, from many contagious influences, yet seem to have been frequently selected as the victims of this disease; and in one lamented instance, a carbuncle proved fatal to a practitioner in Dalston-terrace. I have not, however, been able to trace any proof of contagion in this epidemic. On the contrary, I can call to mind very few instances in which it has occurred simultaneously, or even consecutively, in a plurality of persons in the same household. In large schools, I believe, about twenty per cent. only have been attacked.

With regard to the statistics of the disease, it is impossible to form any estimate of the number of persons attacked in proportion to the population; but among the patients treated at the Western Dispensary for Diseases of the Skin, I find that twenty-one per cent. have been more or less affected with the epidemic in some one or other of its various forms. Two per cent. were attacked with carbuncles, eight per cent. with boils, nine per cent. with pustules, and two per cent. with sub-cutaneous abscesses. The onychian form of the disease seems to have disappeared, and to have given place to those pustular tumours of the eyelids called styes.

The geographical extent of the epidemic is one of its most extraordinary features. I have traced it to every part of the metropolis; to Oxford, Cambridge, Bath, Bristol, Manchester, and other cities and towns of England, to North and South Wales, to the Northern coast of Kent, to the Southern coast of Hampshire, and to the Isle of Wight. Reports have reached us of its prevalence in Ireland and in Scotland, in France and in Austria, in both the East and West Indies, in the city of Philadelphia, and at the Cape of Good Hope. Literary notices of the epidemic may be found scattered in nearly all the medical periodicals, both British and foreign; and what is most singular, it appears to have broken out in the four quarters of the globe at one and the same time, and to have been influenced in its rise, progress, and decline by one universal cause.

A CONTRIBUTION TO CLINICAL MIDWIFERY.

By N. J. Highmore, M.D., M.R.C.S., Bradford.

A. B——, aged thirty-six, sent for me at seven o'clock on the morning of the 29th of January, she being in labour with her first child. She stated that her pains had commenced at midnight, and continued gradually increasing in frequency and severity. They now occur at intervals of about five minutes; the bowels have been twice purged, and the urine is passed frequently and without difficulty. On examination, I felt the head of the child distinctly through the uterine parietes; and after a short time I left.

At half-past nine I was again summoned; the pains were then rather more frequent, but I found that I was unable to detect the os or cervix uteri, although the vagina was relaxed, and the uterus descended low down with each pain, feeling like a smooth, globular mass, bounded all around by the vaginal cul-de-sac.

I again called at half-past one, when the symtoms remaining as before, I informed one of the persons present of the nature of the case, gave a dose of laudanum, to allay excessive uterine action and favour relaxation, and again left, thinking that if agglutination existed, the continuous pain would develop the os.

At half-past four I again visited my patient, and found that although the pains were almost constant, and very severe, *not the slightest trace of the uterine orifice existed*. I therefore stated the nature of the difficulty to the family, and requested that my friend Dr. Morgan might be called in to consult with me.

At his arrival, shortly after six o'clock, on examination, the occluded os uteri was found to have yielded, and was dilated almost to the size of a half-crown; and so rapidly did the labour progress, that she was delivered at ten minutes before seven, of a living female child. The placenta was adherent, and had to be removed; it was very soft and friable, breaking upon the slightest pressure, and having precisely the feeling and consistence of clotted blood. The mother made a good recovery, and both she and the infant are now well.

Remarks.—The patient whose case I have narrated, has, since her marriage and during gestation, enjoyed good health, but previously, was for years in a very delicate state, suffering from anæmia, general debility, dyspepsia, pain in the back, scanty, painful menstruation, and leucorrhœa; the connexion between which symptoms and the history of her labour, forming, I think, a very perfect and interesting illustration of one branch of uterine pathology.

CLINICAL ILLUSTRATIONS OF SUB-ACUTE OVARITIS.

By E. J. Tilt, M.D.

Senior Physician to the Farringdon General Dispensary and Lying-in Charity, and to the Paddington Free Dispensary for Women and Children

(Concluded from September No., p. 186.)

Supposing it be conceded, until further researches, that ovaralgia is but another name for lumbo-abdominal neuralgia, then it only remains to me to establish the diagnosis between it and sub-acute ovaritis, which is often rendered difficult by the similarity of the seat of pain in both complaints. Those of a nervous temperament are most liable to lumbo-abdominal neuralgia, not brunettes of a sanguine constitution, as in most of the cases given in the previous papers. Pain exists in all, but while in sub-acute ovaritis it is more fixed, continues with the same intensity without regular exacerbation, and is exasperated by every kind of pressure, in lumbo-abdominal neuralgia it is quite the contrary; for although there may be at all times a dull, aching sensation, it is frequently not so, and the pain recurs by repeated attacks, and is relieved by wide or even by continued pressure with the united tips of the fingers. Dr. F. Churchill rightly says, that what he terms ovarian irritation is characterized by a kind of nervous tenderness which shrinks from the weight of the finger as much as from severe pressure, and not by the *positive* pain, as in my cases.

There is no swelling, no heat, no pain of the ovaries, when these organs are subjected to a rectal examination, as correctly stated by Dr. F. Churchill, whereas there is heat, swelling, and pain, in sub-acute ovaritis.

The pain is unaccompanied by any sympathetic pain of the breasts, or fever, in lumbo-abdominal neuralgia; not so in sub-acute ovaritis. Lumbo-abdominal neuralgia is so frequent an accompaniment of uterine disease, that Dr. Beau and others expect to find it when the former exists, and Dr. Bennet looks upon its ovarian forms as almost pathognomonic of uterine disease, while sub-acute ovaritis is not so frequently induced by uterine disease. Lastly, with regard to the treatment. Repeated blisters and opium are of most use in lumbo-abdominal neuralgia, but such remedies, valuable in the later stages of the disease, require to be employed after leeches, emollients, &c., in sub-acute ovaritis.

If my argumentation is not at fault, then my ten cases were examples of sub-acute ovaritis: and, moreover, the complaint can be diagnosed with a degree of precision quite sufficient for all practical purposes, without having recourse to any internal examination. It was so in six out of the ten cases, while digital examination was necessary to establish the diagnosis in four, but a rectal examination in none.

Taught by former experience, wherein the coincidence of sterility or uterine disease rendered imperative a more accurate examination, I concluded from the symptoms narrated that the ovaries were subacutely inflamed, although my finger did not feel them swollen, although I did not see the patient wince under the moderate pressure of the finger mediately applied to these organs; but I maintain that whenever the case is complicated or great pressure is required, it is necessary to make a rectal examination. From not having done so in the following case, I did not understand the whole of its bearings, and some readers may think that I was completely wrong.

Case 11.—Sarah N——, twenty-three years of age, is tall, of slender make, with light brown hair and grey eyes; she is a washerwoman in good circumstances. After painful prodromata lasting six months, menstruation first appeared at thirteen, and at once assumed the monthly type, lasting five days, and being very abundant, bright and clotty. She was married at seventeen, and has had two children, and during both lactations, prolonged to the thirteenth and twentieth months, menstruation occurred every fourteen days with unusual abundance. Three months previous to her applying to me for relief, she consulted a physician, who judiciously told her to wean the child. On doing so, menstruation returned to the monthly type, and became less abundant; but while still debilitated by the effects of habitually profuse menstruation, and about the time when it should have come on, she got wet through, caught a violent cold, attended by fever, and instead of the catamenia appearing, the patient was seized with agonizing pains in both ovarian regions, described by her as bearing down and pinching pains, and augmented by standing long or by pressure. There was no leucorrhœa and no pain about the pubis when, January 13th, 1850, she applied for relief at the Paddington Free Dispensary. I ordered five leeches to each ovarian region, and the usual treatment; but not hearing anything more of the patient, I sought out her abode, and learnt that she had derived benefit from the treatment, but that having been obliged to exert herself more than usual, on account of her mother's illness, e had miscarried of a three-months fœtus three eeks after coming to the dispensary.

Dr. Rigby admits that ovaritis is one of the most equent causes of abortion, and possibly my diagnos was correct, and a relapse may have brought on e miscarriage. This view seems to be confirmed by e great tendency to exaggerated ovarian action ever nce the patient first menstruated, while the sudden vasion of acute pain in the ovarian region, in consequence of menstruation being interrupted by a verish cold, would certainly again cause me to give similar diagnosis; but I abandon the case, as it adits of more than one interpretation, and merely ring it forward to show that I acquired but a very nperfect knowledge of it, because I neglected a aginal and rectal examination. If the patient had een thus examined, early pregnancy would have een detected, and she would have been warned gainst the excess of fatigue which caused the death f the embryo, and the prolonged illness of the paient. This case is well worth the attention of those nedical men who object to a rectal examination on the ground of its being an unclean practice; as if a medical man can be stopped by such a consideration when ealth is at stake!

We cannot conclude without observing that subcute inflammation of the ovaria does more than cause emporary ill-health; it may determine or be accomanied by ovarian peritonitis, and even set up inflamnation in the surrounding portion of the peritonæum. Many obstetric writers, as well as Burns, Sir C. M. Clarke, and Dr. R. Lee, have noticed the great frequency of lesions of the ovaria, and of false membranes n their vicinity, even in unmarried women—lesions not to be accounted for by any previous severe uterine lisease, from which it could be ascertained that the patients had suffered.

With regard to peritonitis, I will merely cite the practice of one London hospital, St. George's, where the post-mortem appearances are noted with a praiseworthy care. In 1850 the medical practice afforded four instances of idiopathic peritonitis; three occurred in young women of twenty, twenty-one, and twenty-four years of age; with two the menstrual function was deranged, and the patients anæmic; the third, though married eighteen months, had had no children, and, after passing pus in her stools, she recovered.

Now, it seems to me that the cases I have previously related are explanatory of those of peritonitis. Again, there is a form of peritonitis to which women are more subject than men, in which bridles of lymph are so attached as to bind the intestine, and produce fatal incarceration. Why should such bridles be more frequent in the vicinity of the ovaria? I will answer this question, as I found it in one of the last impressions of the *London Medical Gazette*. An eminent pathologist, Dr. Renaud, of Manchester, relates the death of a girl, twenty-one years of age, from two bridles of lymph, which produced an impenetrable stricture of the ilium, and adds the following reflections:—

"My own experience in pathological anatomy, and a perusal of the cases recorded by others, justifies the conclusion that peritonitis in females arises in many instances out of a chronic form of congestive irritation, to which the generative apparatus within the abdomen is liable. That this long-continued irritation, as manifested directly by pain and throbbing in the region of the ovaries and uterus, and indirectly by lumbar irritation, dysmenorrhœa, crural pains, &c., does frequently advance to local inflammatory action, is sufficiently evident from the bands of lymph that are so frequently seen matting the ovaries, broad ligaments, and oviducts together. If, therefore, folds of bowel or portions of omentum are in contiguous relationship with parts influenced by these morbid actions, it is not contrary to rational pathology to infer that they will partake in a limited degree of the same actions; and a bond of union being thus morbidly constituted, it only requires time and the peristaltic action of the bowels to elongate the lymph into a band, which, under accidental circumstances, may prove an incarcerating medium."

Rokitansky is likewise of opinion that internal constrictions of the intestines, are much more frequent in females than in males; a result which indeed might have been anticipated, on account of the great changes in function, structure, and position, to which the abdominal viscera are subject, by menstruation, pregnancy, and from uterine and ovarian tumours; and this esteemed author also reports that—

"In two instances with which I am familiar, the pressure of the prolapsed ovarium, loaded with purulent fluid, produced in each case a fatal form of *ileus*. In one of these the tumour filled the rectum; neither bougie nor injection could be conveyed beyond it, and such was its apparent solidity, that I did not for a moment contemplate puncturing. But the deception was fatal to the patient. The second case, very similar in all respects to the first, occurred in the practice of a surgeon in the country, who sent me its history, and the morbid parts for examination."

The pith of the present communication can be summed up in a few words:

I. It seems urgent on us carefully to bear in mind the frequency of inflammatory products in or about the ovaries, the frequency of intense suffering in the ovarian regions at the menstrual periods, and the great probability of both facts standing one to the other in the relation of cause to effect.

II. It seems incumbent on us to bear in mind the greater liability of young women to idiopathic peritonitis, and incarceration from bridles of inflammatory lymph, at the very age when I have shown that even the sub-acute inflammation of the ovaries is most frequent, and therefore the imperative necessity of watching over the first stages of a complaint, which, being too often left to nature, is as frequently productive of serious mischief.

III. Lastly, that sub-acute ovaritis can be distinguished from uterine affections as well as from lumbo-abdominal neuralgia, but that at all events no harm can ensue from the treatment recommended.

ON THE TRIPLE OR AMMONIO-MAGNESIAN PHOSPHATE OCCURRING IN THE URINE AND OTHER ANIMAL LIQUIDS.

By J. W. Griffith, M.D., M.R.C.P.

Two forms of the so-called triple or ammonio-magnesian phosphate have long been considered to exist. One of these is composed of minute microscopic stellæ, mostly with six foliaceous rays, and is readily obtained by adding excess of solution of ammonia to urine; this is known as the "bibasic" phosphate; the other exists in the form of prisms, mostly trilateral, frequently with one of the angles truncated, and with single oblique terminal facets. This is well known as being almost constantly found in putrid urine; and not infrequently, in a somewhat modified form, in neutral or slightly acid urine; and is designated the neutral phosphate of ammonia and magnesia. Both these forms, with their most common modifications, are figured in my "Practical Manual, &c.," 1843, and in most other works on the subject; but their relative compositions, as far as I am aware, have never been accurately determined, nor the connexion of their composition with their form been ascertained. A knowledge of this deficiency induced me in 1845, to prepare artificially, and analyze, the tribasic or stellate form, which can be readily obtained, and in a tolerable state of purity, from healthy urine. The analysis was published in the second part of my "Manual," 1846, p. 58, and shows that this phosphate agrees with that prepared artificially and analyzed by Professor Graham.* The composition of the salt, as artificially prepared from a mixture of phosphate of soda, muriate of ammonia, sulphate of magnesia, and solution of ammonia, and as precipitated from urine by the addition of ammonia, after the separation of the lime, is given below.

	Theory.		Graham.	Griffith.
$P O_5$	71·4	29·09	45·85	28·82
2 Mg O	40·0	16·30		16·26
$N H_3$	17·0	6·93	6·98	6·58
H O	117·0	47·68	47·17	48·34
	245·4	100·00	100·00	10 000

Hence there can be no doubt regarding the composition of the "basic" salt.

The difficulty in ascertaining the constitution of the "neutral" salt has existed in the constancy with which it is met with in admixture with either the basic salt or other foreign substances. I lately, however, discovered how it might be prepared, in an unmixed state, either from an artificial saline mixture or healthy urine. If healthy urine be diluted with water, and some dilute solution of ammonia be stirred into it in small quantities at a time, taking care to apply test-paper before each further addition, so as to prevent its acid reaction from being completely destroyed, the "neutral" triple phosphate will be formed. The same occurs when dilute solution of ammonia is added to a dilute mixture of phosphate of ammonia and sulphate of magnesia, with the same precautions. The precipitates in both cases consist of prisms, exhibiting all the forms of the "neutral" phosphate, sometimes grouped, at others isolated, and the forms are identical in both cases. After washing the crystals with cold water, they were dried in the air, and analyzed in the usual way. I then found that the composition of this "neutral" salt was identical with that of the bibasic. Thus:—

	Theory.		Experiment.		
			I.	II.	III.
$P O_5$	71·4	29·09	45·76	45·73	29·26
2 Mg O	40·0	16·30			16·46
$N H_3$	17·0	6·93	54·24	54·26	7·32
H O	117·0	47·68			
	245·4	100·00	100·00	100 00	

It will naturally be asked, how it is that the form of the crystals is so different, when the composition is the same. This is readily explained, when we recollect that the ammonio-phosphate of magnesia is more insoluble in solution of ammonia than in water; and we never find that the stellate, feathery crystals are formed, except the solution be decidedly ammoniacal. The stellate, feathery crystals therefore result from a more hurried formation, the influence of which in altering the forms of crystals is too well known to require comment. During the spontaneous decomposition of urine, the ammonia is formed gradually, so that we have here the phenomena of the precipitation of the phosphate before sufficient ammonia is formed to render the urine ammoniacal.

The "penniform" crystals of the ammonio-phosphate of magnesia are merely a modified form of the stellate; I have frequently obtained them artificially by adding excess of ammonia to a dilute solution of phosphate of ammonia and sulphate of magnesia: and they are formed in fluids where the quantity of phosphate of magnesia is small, and the amount of ammonia relatively considerable, the solution being dilute. Where the above precautions are not attended to in preparing the respective forms, the two will be found mixed. It may be well to remark here that the stellate, feathery crystals are not soluble in an acid solution from which the prismatic form has subsided, although they only originate in an ammoniacal solution, for the reason above stated.

CASES OF

FISSURE OF THE ANUS AND ULCER OF THE LOWER PART OF THE RECTUM.

By T. J. Ashton, Esq.,

Surgeon to the Blenheim Dispensary.

Mr. A. B ——, aged thirty-four, engaged in mercantile pursuits; of nervous temperament; has suffered for some years from indigestion and irregularity of bowels, being sometimes costive, and at others affected with diarrhœa. Has consulted several medical men, but never pursued any plan of treatment suggested. He applied to me the beginning of last year, suffering from indigestion, attended with pain at the epigastrium, flatulence, excessive nervousness, and inability to rest at night. Examining the urine by the microscope, numerous crystals of oxalate of lime were seen. I prescribed mild aperients and bitter infusions, with nitric and nitro-muriatic acids. He persevered with the remedies, and his health greatly improved. In the beginning of June (1851,) he was slightly troubled with an external pile; under ordinary treatment all inconvenience subsided in a few days, a small pendulous flap of skin on the anterior margin of the anus remaining. On the 24th of the same month I was sent for in great haste, and found my patient suffering from intense pain at the anus, extending up the hollow of the sacrum; pulse quick and irritable; tongue slightly furred, skin somewhat hotter and drier than natural; countenance anxious; he had experienced slight pain for two or three days, and was in a state of great alarm about himself, imagining he had cancer of the rectum commencing, having a short time previously lost a sister by that disease. Examination revealed a fissure of the posterior part of the anus, about one-eighth of an inch broad, and half an inch long. Ordered an enema of four ounces of decoction of barley, and one drachm of laudanum, which had the effect of relieving the pain; to take four grains of grey powder, and five grains of Dover's powder at bed-time, and a saline aperient in the morning. The following day the bowels acted several times, attended with smarting pain, followed by aching, but not so severe as on the previous day; to have an enema containing half a drachm of tincture of opium.

On the 27th, I directed a small piece of lint, saturated with the following lotion, to be kept within the margin of the anus, and renewed three times a day. Sulphate of zinc, six grains; tincture of opium, half a drachm; elder-flower water, three ounces. I also ordered a light, bitter tonic, with bicarbonate of potash, and the bowels to be regulated by mild laxatives. In nine days the fissure had quite healed, and my patient has been perfectly free from pain or annoyance since

Mrs. M——, aged thirty-seven, married, the mother of four children, has suffered from hæmorrhoids for some years, particularly during pregnancy; consulted me in consequence of fearing she had stricture of the rectum. She had for some time previously experienced considerable pain at the time of defæcating, which she described as of a cutting character, resolving into severe aching, frequently so agonizing as to compel her to go to bed. She tried the local application of cold and hot water, experiencing slight relief from the latter. The symptom which added greatly to her alarm, and which she had been told indicated stricture of the rectum, was a reduction in the size and contortion of the evacuations when they were at all solid. On making an examination, I found two external piles, and upon divaricating the buttocks I perceived a fissure passing upwards between the piles; the sphincter ani was strongly contracted. I ordered a full dose of castor-oil to be taken the following morning, and an enema of infusion of linseed to be administered by means of a large caoutchouc bottle, fitted with a small elastic tube. The bowels being well freed by the oil and enema, I removed the piles, and applied nitrate of silver to the fissure, my patient having previously been put under the influence of chloroform. The following day I found her tolerably comfortable: she had remained in bed by my directions. The following ointment to be applied on lint:—Spermaceti ointment, one ounce; acetate of lead, six grains: extract of belladonna, one drachm. On the third day, the bowels not having acted, I ordered a dose of castor-oil, and the linseed enema to be administered, which was done by a clever and trustworthy nurse. The oil and enema having had the desired effect, I prescribed an electuary of equal parts of confection of senna, bitartrate of potash, and extract of taraxacum: a teaspoonful every night. I also directed the injection into the bowel, night and morning, of four ounces of water, eight grains of sulphate of zinc, and one drachm of compound tincture of lavender. She recovered in less than a month, and all symptoms of stricture of the rectum entirely disappeared.

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* Transactions of the Royal Society of London, 1837, p. 68.

Mrs. N——, aged thirty-seven, married, the mother of several children; a patient, in October, 1851, at the Blenheim Dispensary, suffering from gonorrhœa communicated by her husband; she had miscarried seven weeks previously, in her sixth month of pregnancy. Under ordinary treatment all vaginal discharge soon disappeared; but becoming affected with catarrh, she remained under my care about three weeks, when she complained of great pain at the anus, extending up the sacrum and down the thighs; the pain was increased to a violent degree by defæcation, continuing some time after. She told me she had suffered the same pain for the last several weeks, but not so intensely as at present. She had also observed matter with the stools, which she now passed with difficulty, and which were small and compressed. With care I introduced my finger into the bowel, but in so doing occasioned the patient great pain. On the left side of the rectum, within the external sphincter, I felt a depressed surface, with defined margin. I ordered a dose of castor-oil to be taken immediately, and an enema of infusion of linseed.

The following day I visited her, and having administered chloroform, I introduced a speculum, and exposed to view an ulcer somewhat less than a shilling in size, of an oval form, and having a defined and slightly indurated margin, with a pulpy, indolent surface I applied the solid nitrate of silver freely to the ulcer, and desired the recumbent position. The next day I ordered the linseed enema to be repeated; also directed two grains of extract of belladonna to be rubbed up with four ounces of mucilage, and injected twice a day.

By the seventh day she was much better. I again examined the rectum with a speculum, and slightly touched the ulcer with the caustic; it was reduced in size and progressing favourably. There being no longer rigidity of the sphincter, I changed the injection for one containing eight grains of sulphate of zinc to four ounces of water, to be used morning and evening. By the third week she was quite well.

Twelve months ago I saw Mr. S——, aged thirty-nine, a gentleman residing in the country. He had suffered for some time pain in the rectum, and frequent desire to micturate. He consulted his usual medical attendant, who considered his symptoms arose from irritation of the urinary organs. Various medicines were prescribed, and catheters introduced into the urethra, but without any beneficial result. On his arrival in town he applied to me. In stating his case he complained of great pain at the anus during the act of defæcating, increasing to intense agony, and continuing for about two hours after. The bowels were constipated, and from the pain he suffered he avoided going to the closet as long as he could. His bladder was in an irritable condition. I informed him I considered the rectum to be the part affected, and made an examination. The sphincter was strongly contracted. On introducing the finger into the bowel, I felt, on the left side, an ulcer nearly an inch in its long diameter. The margins were much indurated. I ordered four grains of grey powder, and five of Dover's powder, to be taken at bed-time; a dose of castor-oil in the morning; and to sit over the steam of hot water. From the hard edge of the ulcer, and the time it had probably existed, I considered incision the appropriate treatment, and received the patient's consent to the operation. On the following afternoon he was put under the influence of chloroform. I then introduced a speculum, exposing an ulcer with defined and raised margin, and having a foul, indolent surface. I transfixed its base with a small curved bistoury, and divided it by cutting inwards.

In little more than three weeks he had quite recovered; the bowels were regulated with castor-oil occasionally, and an electuary of confection of senna, bitartrate of potash, and extract of taraxacum.

Mrs. H——, aged twenty-nine, married; a patient at the Blenheim Dispensary in the autumn of last year, having ulceration of labia, fissures of tongue, and general ailment; in the early part of February was prematurely confined; child dead. On the 2d of March, she again placed herself under my care, complaining of smarting at the anus on defæcating, followed by extreme aching, which continued between one and two hours. On examination, an external pile presented; the sphincter was strongly contracted; and within the margin of the anus, at the posterior part, a fissure existed. Ordered, confection of senna, one ounce; jalap, one drachm; sulphur, two drachms and a half; a teaspoonful every morning; and to inject half a pint of tepid water into the bowel after each evacuation.

On the 5th of March, I removed the external pile by incision, and directed the following ointment, on lint, to be applied to the anus; zinc ointment, one ounce; powdered opium, ten grains. For several days she did not progress so rapidly as I could wish. The electuary having very little effect, and the bowels remaining costive, I ordered a pill to be taken every second night, composed of blue-pill, five grains; croton oil, one drop; and the following ointment to be used to the fissure of the anus: extract of belladonna, one drachm; spermaceti ointment, one ounce; and six ounces of infusion of linseed to be injected night and morning. The pill thoroughly freed the bowels, and great improvement took place. Before the end of the month she was quite well.

Mr. H——, aged forty-five, consulted me last autumn, (1851.) He had suffered, for about eight weeks previously, severe pain at the anus, extending up the sacrum to the loins, the pain then being excruciating. The bladder was sympathetically affected, producing frequent desire to micturate. He had observed his linen stained with blood and pus. Leading a sedentary life, and being of costive habit, he had for several years taken large quantities of Morrison's pills.

On examination, finding the sphincter strongly contracted, and taking into consideration the other symptoms, I suspected the existence of an ulcer. I attempted to introduce the speculum, but the patient could not tolerate the pain. I therefore put him under the influence of chloroform, and then introduced the instrument, bringing into view, on the left side, an ulcer, of oval form, nearly an inch in its vertical diameter; the edges were sharp and indurated; the surface of an ash colour. I ordered some mercury-and chalk, with Dover's powder, at bed time, and confection of senna and sulphur in the morning; to be followed by an emollient enema. I also desired the recumbent position to be observed. From the appearance of the ulcer I deemed incision necessary, but my patient objected to the operation, requesting I would try other means first. On my second visit, I applied the nitrate of silver, no beneficial effect being produced. I applied it a second and third time, with no better result. A variety of stimulating and other applications were tried, during six weeks, without any advantage being gained. I then insisted on performing the operation, to which my patient now consented. Having administered chloroform, I introduced into the rectum the fore-finger of the right hand, and passed upon it a straight, probe-pointed bistoury, and made an incision through the centre of the ulcer, dividing the mucous membrane, submucous cellular tissue, and probably some fibres of the sphincter ani, but not the entire muscle. From the time of the operation the ulcer rapidly improved, and in three weeks had quite healed.

Fissure of the anus and ulceration of the lower part of the rectum are of frequent occurrence, giving rise to intense suffering, quite immensurable with the pathological change in the part. Fortunately they readily succumb to judicious and proper treatment. The foregoing cases I have selected as exemplifying the different phases of the disease, and illustrating the plan of treatment. Differences of opinion exist on several points among those who have written on the subject; some authors thinking, in the treatment of fissure and ulcer, all sorts of applications, whether stimulating or soothing, are unavailing, and incision affords the only remedy. They also differ as to the extent of incision; some maintaining the entire division of the external and internal sphincter to be necessary, while others limit their incision to the mucous and sub-mucous tissues. My experience leads me to the conclusion that recent cases will yield to treatment without incision, as is clearly illustrated in several I have recorded, as well as in others of a similar character which I have treated in the same manner. But in order to obtain the greatest probability of success, it is highly essential the surgeon should apply the medicaments, or satisfy himself they are properly applied by a competent and trustworthy attendant. If the ulcer has existed some time, and the edges have become much indurated, then incision is most appropriate, if not absolutely necessary, but need not be carried through the sphincters. The operation is simple, causes little pain, and occasions the loss of only a few drops of blood. It may be performed either with a probe-pointed bistoury, passed flat on the fore-finger previously introduced into the rectum, and then turning the edge towards the centre of the ulcer, and making the requisite incision from within outwards, dividing the mucous and sub-mucous tissues only; or the ulcer may be transfixed by a small, sharp-pointed, curved bistoury, and divided from without inwards, as recommended by Mr. Syme. In performing the operation the latter way, I prefer using a speculum to cutting on the finger, which thus escapes the chance of being wounded.

CASE OF

BOTHRIOCEPHALUS LATUS, (RUSSIAN AND SWISS TAPE-WORM,) OCCURRING IN AN ENGLISH CHILD, CURED BY THE OIL OF MALE FERN.

By Wm. Withey Gull, M.D., Lond., L.R.C.P.

Susan G——, aged five years, came under my notice first in December, 1851, for tape-worm. Her mother brought with her a portion of worm the child had recently voided, and which, to my surprise, was a considerable length of the bothriocephalus latus. Being anxious to investigate the case further, I declined ordering any medicine, unless she was admitted into the children's ward. This the mother at the time objected to; but subsequently the child was admitted under my care on the 20th of February, 1852. Careful inquiry was made of the child's birth-place, and where it had lived, and her statements never varied from those contained in the following report by Mr. Chaplin, the clinical clerk:—

She lives at Woolwich, and the mother gives the following account of her:—At the age of eighteen months having then been weaned more than half a year, she became very ill, with feverish symptoms and cough. Her ailment was so severe that it was thought she would die; but after having passed a quantity of tape-worm, rolled up into a mass of the size of the bowl of a tobacco-pipe, she began to recover. Since that time she has had several similar attacks, becoming feverish and fretful, with loss of appetite, &c., and soon after passed a portion of the worm, upon which the symptoms have subsided. These attacks came on, at first, at intervals of some months; but lately they have been more frequent. She passed the last portion about a week ago, having previously suffered in the usual way, described above. The several pieces of worm which the mother had collected, and brought with her, measured thirteen feet. The parents of the child are English, and neither of them has ever been abroad, the limit of their farthest excursions from home being Gravesend. The mother was born at Poplar, the father at Woolwich, where he works as a smith. His occupations have sometimes taken him on board foreign vessels. They have no foreign friends, nor friends residing on the continent, from whom they could have received any presents. The child was born at Limehouse, and lived there with its parents for some time, and during that period the family probably used the water of the New River Company. Whilst living at Woolwich, they have obtained it from the Kent water-works. On admission, the child was pale; rather dull and feverish; bowels confined; pulse natural; tongue clean and pale; abdomen large and hard. Ordered ten grains of jalap-and-mercury powder to be taken at bed-time.

23d. The bowels have not yet been acted upon. Repeat powder.

25th. Powder produced a copious evacuation, but no portion of worm expelled. Ordered the following mixture:—Magnesia and sulphate of magnesia, a dessert-spoonful three times a day.

28th. The bowels have continued to act freely, but no portion of worm has passed. Ordered the following draught:—Oil of male fern, one drachm and a half, acacia mixture, two drachms, distilled water, one ounce and a half; to be taken early the following morning.

20th. The draught was administered at seven o'clock this morning, and produced slight sickness, but only a small part was returned. At one o'clock the bowels acted forcibly, accompanied with a good deal of straining. The worm, measuring seventeen feet, and including the head, was expelled entire. The child suffered no inconvenience from the medicine in any way, and the following morning seemed well.

The interest attaching to this case is peculiar, from the species of worm, the early age of its locating itself in the child, and the satisfactory effects of the oil of male fern.

In our present state of knowledge respecting intestinal worms, every fact connected with their history deserves to be recorded. The occurrence of the bothriocephalus latus in persons who have not lived out of England, is rare. Professor Owen states, that in looking over the collection made by a celebrated worm-doctor in Long-acre, he found three specimens of this worm; two of these had come from persons who had been in Switzerland, of the third no authentic account could be given. In a conversation with him on the case here recorded, he remarked that a sea-port was just the locality in which we might expect to meet with anomalies in geographical distribution of intestinal worms, since their ova might be deposited in various ways in such localities, by persons who traded thither, and that it was surprising their occurrence was so rare. To which I may add, that when we consider the fertility of these creatures, and the possibility of Russian sailors being infested with them, we may indeed wonder that they have not been imported amongst us; and the fact that they have not been prevalent, suggests that they are more dependent upon *external conditions of soil and the like*, than upon the human body itself—for we can hardly suppose that the intestinal secretions of a Russian or a Swiss are more favourable to the existence of a bothriocephalus latus, than are those of an Englishman.

The circumstances under which these creatures exist out of the body are yet unknown, but their restriction to certain localities, and the changes of form which some of this class undergo, render it probable that we may yet recognise them under some other form in the water of the places where they occur. With such views, we can well understand why the tape-worm of one locality should not prevail in another, and also why, where a solitary exception is found, it should be in a place having communication with foreign countries.

The extreme fertility of the bothriocephalus will be understood, by considering that each foot of the well-developed worm contains about 150 segments or joints, that each joint possesses its own ovary and male organs. Hence, each joint is fertile; and as each ovary would produce 8000 ova, according to as careful a calculation as possible, ten feet of such a worm would produce 12,000,000 of ova.

I have taken every means of examining the head of this specimen, but can find no trace of a terminal pore, by which it could imbibe nourishment, nor any signs of vessels by which the intestinal fluids, if so taken up, could be distributed. It seems probable that these animals nourish themselves as the algæ do, *by absorbing the fluids in which they are immersed by the whole surface of their bodies;* a view which I think I am at liberty to say is thought by Professor Owen to be not improbable.

CASE OF DISEASE OF THE AORTA, AND HYPERTROPHY OF THE LEFT VENTRICLE OF THE HEART.

WITH REMARKS.

By John Topham, M.D. Lond.

Physician to the South Staffordshire General Hospital, Wolverhampton.

M. N——, thirty-one years of age, is employed as a labourer in the coal-mines, and from the nature of his occupation is continually exposed to mechanical injury, from the falling-in of portions of the roof of the subterranean galleries in which he works, and has from time to time received severe contusions about the thorax from this cause. He refers his present sensations to the consequences of a fall of coal upon his chest fifteen weeks previously to my first seeing him, as ever since that accident he has complained of difficulty of breathing, and has been sensible of a continual *beating sensation* in his chest, any act requiring great muscular exertion occasioning palpitation of the heart. During the last three weeks, violent cephalalgia and a slight cough have been added to the above symptoms. He is a married man, of temperate habits; has never had rheumatism; and the only severe illness he can recollect having undergone occurred three years ago, when he suffered from hæmoptysis to a considerable extent, the blood expectorated being of a dark colour.

Physical signs.—The thorax is well-formed generally, but there is an evident *vaulting* over the region occupied by the heart. A measurement of the chest made in the situation of the fifth and sixth ribs, demonstrates that the left exceeds the right side of the thorax in its dimensions by about three-fourths of an inch. (The patient is right-handed.) On the right side of the chest, in the region corresponding to the articulation of the second and third ribs, there is a pulsation synchronous with that of the heart; and a similar phenomenon is perceptible in front of the neck, between the sternal articulations of the clavicles. There is dulness on percussion, extending from the left nipple downwards to the lower margin of the last true rib, and laterally to the left margin of the sternum. Over all this space, the performance of the act of percussion occasions pain to the patient. The right side of the chest is naturally resonant, except over a portion of about an inch square, situated over the sternal attachment of the second and third ribs. In this locality the fingers discover a pulsation coincident with that of the heart; the motion communicated is, however, *double*, the second impulse being longer in duration than the preceding one. A distinct *frémissement* accompanies the second of these pulsations. Upon placing the hand over the cardiac region, a strong heaving impulse is felt. Auscultation practised over the front of the thorax demonstrates the respiratory sounds to be natural, save in the situations mentioned as existing on either side; for in these places there is an absence of respiratory murmur. The first sound of the heart is unusually dull, and the second is accompanied by a slight blowing murmur, so protracted, however, as to render this longer by one-half than the first sound. There is no vascular murmur observable in the back of the thorax, save a slight *bruit de soufflet* to the left of the first dorsal vertebra. The murmur described as existing to the right of the sternum, is audible in both carotid arteries, and most so in that of the right side; it is also heard between the sterno-clavicular articulations.

I had the patient admitted into the wards of the institution at which he had applied for relief (the

Wolverhampton Dispensary) on the 26th of July, 1848; but he left at his own request at the expiration of three days. The diagnosis then made was aneurism of thoracic aorta, with hypertrophy of left ventricle. He came to see me at intervals until the 21st of October, 1848, during which period there was little change observable in the physical signs, save that the inequality in the duration of the two cardiac sounds had to a great extent disappeared. He was enjoined to avoid all active pursuits as far as possible, with all excesses in diet, and was ordered a mixture containing tincture of digitalis and sulphate of magnesia.

From October the 21st, 1848, until the time of his decease, May 16th, 1851, he was entirely lost sight of, and the above history and observations are copied from notes made by me at the time.

Post-mortem appearances.—An examination of the contents of the thorax was made on the night of the patient's death. The left ventricle of the heart was found to be greatly enlarged, the corresponding cavity on the opposite side remaining of the natural dimensions. The wall of the dilated ventricle was exactly one inch in thickness, measured near the septum ventriculorum; and the weight of the entire heart amounted to two pounds twelve ounces. The division between two of the aortic sigmoid valves was destroyed, and the two fused, as it were, into one, so that an irregular, buttonhole-looking orifice remained. The other valves of the heart were healthy. The aorta was greatly dilated from immediately above the situation of the semilunar valves to the giving off of the brachio-cephalic trunk. An inch above the aortic valves, on the posterior aspect of the vessel, there was an aneurismal pouch, about the size and shape of a chesnut. There was no rupture of any of the coats of the aorta, but its inner surface was studded with cartilaginous-looking nodules. The pericardium was not adherent, but traces of former inflammation of that membrane were shown by the presence of two white patches situated upon its visceral layer, upon the left ventricle, the larger of these being two inches in length. They were not raised above the surface of the heart. Each of the lungs exhibited marks of extensive recent inflammation, the patient having succumbed to an attack of pneumonia after a short illness.

Remarks.—It must ever add to its interest upon our minds, when, after having lost sight of a case of disease for many months, or even for years, the subject of it is again unexpectedly presented to our observation, and the notes and remarks registered and made upon previous occasions are rendered capable of being compared, and the accuracy of the views then taken, verified, as was enabled to be done in the instance under consideration.

The complaint under which this patient laboured was probably referred to its true cause by the sufferer himself—that of *mechanical injury*, coupled with a life passed in laborious exertion. A very parallel instance is thus related in the graphic words of Dr. Latham :—

"A man passing through Spa-fields one night was unmercifully beaten and plundered; and thrown into a ditch, and left to die. Die, however, he did not, but lay there he knew not how long; for he was insensible. The next day he was found, and taken home. He was disabled by the bruises he had received, and by *palpitation* of the heart and dyspnœa, which he had never complained of before, and was never again able to return to his ordinary occupation. After some months he was admitted into St. Bartholomew's Hospital, dropsical, and bearing all the symptoms which denote hypertrophy and dilatation of the heart. He soon died, and his heart was found of a size which was almost incredible. All its muscular substance was enormously amplified, and all its cavities enormously dilated; its pericardium, and lining membrane, and valves free from disease." ("Lectures on Diseases of the Heart," vol. ii. p. 205.)

It has been proved, in various instances, that excessive muscular exertion is capable of occasioning immediate injury to the mechanism of the heart. Thus in Dr. Latham's admirable work, is a case communicated by Dr. Bence Jones, in which one of the septa of the aortic valves "was torn away from its attachments, and thus two of its pouches were reduced to a single irregular one." When acting as house-surgeon to University College Hospital, London, an instance, occasioned in a similar manner to the above, was shown to me by Mr. Mercer, of Deal; and the precise nature of the disorder has since been ascertained and described by my friend Dr. R. Quain, under whose care the man afterwards was placed. He lived for nearly two years (this was in 1843,) and after his death, Dr. Quain had an opportunity of examining the organs contained within the thorax, when it was found that "all the cavities of the heart were enlarged and filled with blood. The arch of the aorta was somewhat dilated; the heart weighed twenty-two ounces. The chief disease was found at the entrance of the aorta; here it was noticed that the conjoined attachments of two of the valves to the aorta had been separated from the wall of that vessel, and thus those valves were allowed to drop below the level of the third, which retained its connexions." When I saw the patient, the character of the lesion was plainly evident from the loud regurgitant aortic murmur which existed, and which was strongly audible, even along the course of the femoral arteries. This case, with other similar ones, was submitted by Dr. Quain to the Pathological Society of London, October 20th, 1846; and they are all recorded in the *Monthly Journal of Medical Science* for December of that year.

The weight of the heart in the case now under consideration, in place of being eight ounces and a half, as is stated by Dr. Clendinning to be the average in persons aged between thirty and fifty years, amounted to two pounds twelve ounces. It is to be regretted that a microscopical examination of the morbid deposit observed in the aorta was not made; but owing to some carelessness, the parts were mislaid before I had time to institute such an investigation.

In respect to the physical signs observable during life, these were such as to admit of no doubt as to the nature and seat of the disease. The localization of these signs on the right of the sternum, at the seat of articulation of the second and third ribs, was sufficient to indicate that the ascending aorta was the part implicated. Besides the dulness on percussion and the impulse, the presence of two morbid sounds, neither of which existed prominently over the heart itself, (though there were most unequivocal signs of great disease of that organ,) showed that the origin of these must be referred to something extraneous to the great organ of the circulation. The natural resonance on percussion of the right side of the thorax (save over the situation before indicated,) went to prove that there was no tuberculization of the lung, since in that case the dulness would probably have extended up into the acromial angle, *the proper stethoscopic corner*, as it is called by Dr. C. J. B. Williams ("Library of Practical Medicine," vol. iii. p. 176.) The necropsy demonstrated that there were no tubercles deposited in the lungs, and thus added another to the instances tending to show that pulmonary tuberculosis and aneurism are not frequent concomitants. The hæmoptysis which had occurred three years previously, must be attributed to some other cause than the disease now described; perhaps to that given by the patient—viz., unusual bodily toil, occasioning rupture of some of the pulmonary tissues.

CASE OF DEATH FROM THE FORMATION OF A FIBRINOUS CONCRETION IN THE HEART.

By Walter Garstang, M.D., M.R.C.S., L.A.C., &c.

On the 10th of February last I was requested to visit Mr. ——, a gentleman sixty-four years of age, who had been seized with erysipelas of the head and face. He was of a gouty diathesis, and had lived at all times freely. On some occasions he had shown signs of congestion of the liver, and even of ascites, but these attacks had always been removed by the usual treatment. On the present occasion these last-named symptoms were combined with the erysipelatous disorder. The erysipelas had given rise to much swelling of the head and face; the pulse was at 94, and moderately full; the tongue covered with a thick fur; bowels costive; motions deficient in bile; urine small in quantity, and of a high colour. I ordered, in the first instance, an aperient of calomel and colocynth; afterwards a mixture containing antimony and nitrate of potass every three hours; a cold lotion to be applied to the inflamed parts. On the following day the urine deposited lithates, the bowels acted well, the tongue was clean, the pulse at 90, and the inflammation abating. Favourable symptoms continued for a fortnight, and the patient became able to sit up for several hours during the day. His diet was improved, and he was allowed a small quantity of sherry at dinner. During the course of three weeks, from this point, there was not much change; the appetite was good, the digestive functions were performed well, the inflammation was gone, but the system did not seem to regain strength, and the heart's action was very feeble, the radial pulse being at 80, and weak. At the time now named (five weeks from the first attack) the patient took a slight cold, and a mild repetition of the erysipelas and of the hepatic derangement appeared. These symptoms, however, were checked as speedily as before, the appetite returned, and digestion seemed to be easily accomplished, and yet, with all these favourable appearances, his strength failed; the action of the heart and the respiratory movements gradually grew feebler, and at length, without any sign of pulmonary, cerebral, or abdominal disease, these asthenic symptoms terminated slowly in death, just eleven weeks after the first commencement of the erysipelatous attack.

Post-mortem examination.—With the exception of a slight enlargement of the liver, we could find no organ exhibiting structural change. The lungs were perfectly healthy. Upon opening the heart, however, we discovered what, in my opinion, fully accounts for the gradual dissolution: a fibrinous mass filled both its right cavities, and sent up large and long branches into the pulmonary artery and its ramifications. The concretion was firm and white, and had an attachment to the walls of the heart.

Remarks.—I have but few remarks to make on this interesting case, and I should probably never have thought of publishing it at all, had not my attention been forcibly drawn during the last few months to certain observations which have been made before the Medical Society of London by Mr. B. W. Richardson, "On the Fibrinous Element of the Blood," and which have been reported in the columns of The Lancet. I find that in a paper read by Mr. Richardson in November last, he thus observes: "Lastly, in cases of asthenia, where fibrinous concretions exist in the heart, the very cessation of the act of life may be owing to their presence and gradual increase, the central organ of the circulation becoming literally choked by them."

In January, again, the same author briefly alluded to this subject, and produced a pathological specimen, which strongly supported his views, and lastly, in March, on exhibiting another heart in which a fibrinous clot was found, he gave more enlarged views on the matter, and threw out the idea, that during those diseases which are known to be attended with an abnormal quantity of fibrine in the blood, it may be that some of the overplus of fibrine is deposited on the elevated structures of the moving heart; and he concluded by saying, that "in all inflammatory cases marked by great superfibrination of the blood, and which end by what is called sinking, it would be interesting to learn how far similar concretions in the heart may be concerned in bringing about the sinking state."

Now, without wishing to mention the many theoretical points which Mr. Richardson and other physiologists enter into, with reference to the formation of fibrine, &c., I cannot but observe that the case which I have related above affords striking testimony as to the correctness of the opinions from which I have just quoted. My patient had suffered from erysipelas, a disease in which the blood is always superfibrinized; he sank in the most gradual manner, and the autopsy revealed no cause for the sinking, except (what was surely sufficient) a large fibrinous concretion in the heart. Of course, the narration of a single case does not go far to establish any new opinion, but perhaps it may excite others to turn their attention to the same subject. I have been puzzled over and over again at seeing patients gradually sink into death after some slight disorder, with no evident disease that could account for such a serious result. Now, if any explanation so simple as that given by Mr. Richardson should prove, after further research, to account for some of these occurrences, a great step in the practice of medicine will certainly have been made. I shall look forward for further investigations on this subject with exceeding interest.

REMOVAL OF A CARIOUS OS CALCIS.

By A. G. Field, M.R.C.S., L.S.A.,

Surgeon to the Royal Sea-bathing Infirmary.

Case.—Edward E——, aged seventeen, was admitted to the Royal Sea-bathing Infirmary, with caries of the left os calcis. There was an ulcer about an inch behind each malleolus as large as the top of the finger; through these a probe could be passed directly on to so large an extent of diseased bone as to leave little doubt that the whole was affected; its removal was therefore determined on. An abscess formed in the back of the heel six days before the operation, but this was opened immediately fluctuation could be detected, and the parts around it recovered sufficiently to form a flap.

Operation.—On the 26th of July, with the assistance of Messrs. Hoffman, Hunter, and Price, (consulting-surgeons to the Infirmary, I proceeded with the operation in the following manner:—The patient being placed well under the influence of chloroform, the point of a scalpel was passed through the internal ulcer down to the bone, carried downwards and forwards, across the sole, backwards and upwards to the ulcer described as situated behind the outer ankle: this incision was behind the posterior tibial artery and nerve. Another incision of about two inches in extent was made to pass from the convexity of this directly forwards on quite the outer part of the sole, over the calcaneo-cuboid articulation. A flap was then dissected from the heel, the tendo-Achillis divided, and the whole back part of the calcis exposed. Lateral flaps were next dissected back, the artery and nerve being carefully preserved while making the inner one. Thus the plantar, external, and internal surfaces of the bone were exposed. The bone was next grasped in order to steady and use it as a lever, while a stout, narrow-bladed knife, made for the purpose by Messrs. Ferguson, was introduced between the calcis and astragalus, to divide the interosseous ligament; this done, the anterior connexions of the bone were divided in a similar manner, and the excision completed. Very little blood was lost, and no ligature was required.

Three hours after the operation, all oozing having ceased, the flaps were brought together with two sutures and a few strips of isinglass plaster, a compress was placed over the heel, and secured by a roller which extended to the knee. On the fourth day the dressings were removed, and almost complete union was found to have taken place between the cut surfaces.

Remarks.—In performing the above operation, I adopted the plan recommended by Mr. Guthrie in a lecture recorded in a recent number of THE LANCET, excepting that I commenced my incision further back, and exposed the calcaneo-cuboid articulation by means of a second cut. I was induced to do this by the situation of sinuses which I wished to include, and still more by my desire to preserve the posterior tibial artery; for though doubtless the foot would have received a sufficient supply of blood from other sources, there could be no disadvantage in attempting the preservation of this vessel; its division during the operation would materially delay its performance; and further, its preservation would allow of more pressure being subsequently made with the bandage without fear of sloughing. In order to expose the anterior part of the calcaneum, a second incision was carried forwards from the first, quite in the outer part of the sole, to avoid the external plantar artery; this rendered it unnecessary to have so large a posterior flap, which was, in consequence, more easily dissected back. The second incision was also useful in allowing the parts to adapt themselves more perfectly to the hollow caused by the removal of the bone.

ON A CASE OF PHLEGMASIA DOLENS OF THE UPPER EXTREMITY, OCCURRING AFTER PARTURITION.

By J. M. WINN, M.D.

ON the 13th of April last, I was called in to see a Mrs. G——, about forty years of age, residing near the Mile-end-road, and who had been delivered of her ninth child thirteen days before I saw her. I found her in a sinking state. The countenance was extremely anxious; the abdomen tympanitic and distended to an enormous extent; the pulse small and rapid; and the mind confused. The peculiar and very remarkable symptom, however, was a pale, hard, and extremely painful tumefaction of the whole of the right arm, extending from the shoulder, in an even and diffused manner, to the extremities of the fingers. The lower extremities of the body were not affected.

Mr. Hall, of the Mile-end-road, who was in attendance on the case, informed me that his patient had been delivered by a midwife, that she had suffered from occasional rigors, and also from pain (without swelling) of the left shoulder, as if the disease were about to affect both upper extremities.

We ordered milk and brandy, but it was evident that nothing could save her, and she died early on the following morning.

There can be no doubt that the above case was a most unusual form of phlegmasia dolens. I cannot, indeed, find on record a single instance of phlegmasia dolens of an *upper* extremity occurring after parturition. Dr. Ramsbotham, in the last edition of his work on Midwifery, alludes to phlegmasia dolens of the arm as an occasional sequela of carcinoma mammæ; and Drs. Stokes and Graves mention similar cases as complications of typhus, but in no instance as occurring after parturition.

The cases which approximate most closely to the one I have instanced are those (Nos. 1 and 2) published by Mr. Coulson, in his interesting "Observations on Affections of the Joints in the Puerperal State;" but in these cases the disease and pain were principally referred to the neighbourhood of the joints.

I am sorry to add, that every effort to obtain a post-mortem examination was made in vain.

CASE OF RUPTURE OF THE PERITONÆAL COAT OF THE UTERUS.

By RICHARD LEE, B.A., Surgeon.

MRS. C——, aged forty-five, wife of an agricultural labourer, having been in good health and occupied with her usual household duties on the previous evening, was taken in labour with her tenth child about four o'clock on the morning of the 18th of April. The pains were confined to the back, and very feeble, ceasing altogether in less than an hour.

At nine o'clock, a medical attendant, one Mr. Smith, arrived, and having made a vaginal examination, gave it as his opinion that "all was going on well, but the labour would not be over for some time;" when, ordering gin-and-water to be administered, he left. Three doses of the ordered stimulant were administered, and at a quarter before one the patient was suddenly discovered to have lost all power, either of motion or speech. Mr. Smith was again sent for. He arrived at one o'clock, but only in time to see her expire. *No efforts were made to preserve the child.*

A coroner's inquest was appointed, and I received an order to examine the body of the deceased, which I did, assisted by Mr. Cogan. The external appearance was unusually healthy, presenting no signs of emaciation or injury. Of her previous labours we could learn but little, except that they had been unaccompanied by anything unusual. The muscles of the abdomen were of natural development; the lungs remarkably healthy, no adhesions; heart small and rather pale, cavities empty; abdominal viscera healthy, but in the cavity of the abdomen we discovered about three pints of dark liquid blood; the uterus appeared healthy, and of natural development; the os dilated to the size of a sixpence, not stained with blood at any point. Raising the uterus, we discovered, on the posterior surface, about the centre, a rupture in the peritonæal coat, extending transversely between ten and eleven inches, the margins being, in the centre, two and a half inches apart. Above, and parallel with this, was a second rent seven inches long and three-quarters of an inch wide. They both crossed a large vein the size of a goosequill from which the principal hæmorrhage occurred. On opening the uterus anteriorly down the middle line, we found the whole internal surface, on that side, covered by an unusually large placenta. The membranes had not been ruptured, but contained only a small amount of liquor amnii; also a healthy male fœtus at the full period of gestation, head presenting.

This case is interesting in various points, among which by no means the least is its comparative rarity, the injury being confined exclusively to the peritonæum. The os uteri was thin and yielding, the liquor amnii present, though not in large amount, and no *perceptible* contraction had taken place for seven hours and a half before the accident occurred; facts which, taken together, would strengthen the opinion that the walls of the uterus become expanded just previous to a contraction, on which hypothesis an accident of this kind would easily be explained; whereas I do not think anything very satisfactory can be attained if we are to regard it as the result of contraction alone.

A second question arises, would it not have been possible to save the child? I leave this to be answered by the profession, but for my own part consider that no means should be omitted by a medical man to save the life even of an unborn fœtus.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON, &c.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tum aliorum proprias, collectas habere et inter se comparare.—MORGAGNI, *De Sed. et Caus. Morb.*, lib. 14. Procemium.

CASES OF UNUNITED FRACTURE,
TREATED BY THE INTRODUCTION OF IVORY PEGS INTO THE FRAGMENTS.

Guy's Hospital	*Ununited Fracture of the Tibia. Treatment with the Ivory Pegs.*	Mr. Hilton.
King's College Hospital.	*Ununited Fracture of the Tibia and Fibula. Use of the Ivory Pegs.*	Mr. Bowman.
King's College Hospital,	*Ununited Fracture of the Ulna. Use of the Ivory Pegs.*	Mr. Fergusson.
City of Dublin Hospital.	*Ununited Fracture of both bones of the Fore-arm. Use of the Ivory Pegs*	Dr. Geoghegan

GUY'S HOSPITAL.

Ununited Fracture of the Tibia in an Old Subject; Union promoted by the introduction of Ivory Pegs, according to Dieffenbach's Method.

(Under the care of Mr. HILTON.

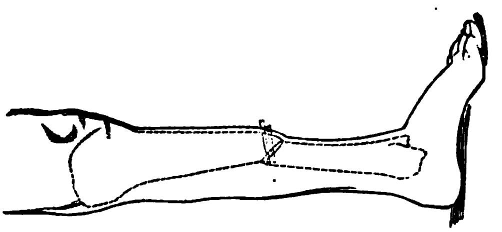
GEORGE P——, aged sixty-five years, residing at Brixton, and by occupation a stone-cutter, was admitted into Philip ward, Sept. 25, 1850, under the care of Mr. Hilton. The patient is a short, healthy-looking, cheerful man, and has generally been sound and well. On the day of his admission he missed his footing whilst going up stairs, fell down, and was incapacitated from walking. When he was brought to the hospital, it was found that the tibia and fibula on the left side were fractured about midway between their extremities. The upper end of the fractured tibia was much displaced forwards, overlaying the lower fragment, and projecting so as to endanger the skin. Every possible attempt was made to replace the broken portions of bone in their proper relation, but only partially was success herein obtained. The extremity of the upper fragment was still riding, and remained so; this want of adjustment appearing to depend, not on muscular action, but on some peculiarity in the outline of the fracture, which interfered with close adaptation.

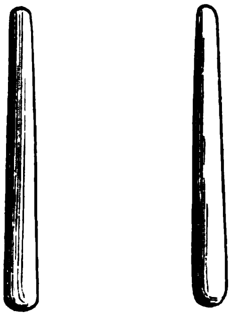
The limb was placed in splints, and swung in the usual way; but when it was examined, nine weeks afterwards, no bony union had taken place. The leg was, therefore, carefully put up again, and examined after the lapse of seven more weeks, when no improvement was found to have occurred. Mr. Hilton now ordered the patient to go into the country for the improvement of his health, with his leg well secured by splints.

The man stayed in the country for four months, and when he returned to Guy's Hospital, the fracture was found in the same condition as when he left the institution. The recumbent position was now tried again, the retentive apparatus being applied with great nicety to the leg. The patient now remained fourteen weeks in bed; he was allowed during that period highly nutritious food, and stimulants in the form of wine and porter, with an abundance of vegetables. But no improvement took place, and the man left the hospital without the fractured bones having consolidated.

On the 11th of December, 1851, Mr. Hilton again admitted him, and finding the bones still ununited, resolved upon trying the various means which have been recommended for promoting union. Mr. Hilton began by introducing two steel needles between the fractured extremities of the bones to excite an inflammatory action. The needles were kept in their position for several days, and gave rise to very painful swelling and inflammation, from the wound down to the ankle. This procedure did not, however, lead to any consolidation.

On the 1st of February, 1852, seven weeks after the patient's third admission, Mr. Hilton determined on giving a trial to Dieffenbach's plan of exciting union in fractured bones; which, as is well known, consists in driving polished ivory pegs through the extremities of the fragments. This was accomplished in the following manner: Mr. Hilton made two apertures with a lancet in the skin, over the upper or projecting portion of the fracture, side by side, and about three quarters of an inch apart. A small gouge was then passed somewhat obliquely through both ends of the fractured bone and the intermediate soft structure; its passage through the outer shell and cancellated structure of the bone being distinctly recognised by their relative density. The two





pegs, each an inch and a half long, were then passed into the holes made by the gouge and lancet, and driven home by the sharp blow of a hammer, so that the top or head of each peg was rather below the level of the surrounding skin.

A good deal of swelling and inflammation soon supervened about the seat of the operation. About four weeks from the introduction of the pegs, the patient, after, as he states, making some little exertion to move himself in bed, lost about three or four ounces of venous blood by the side of one of the pegs. This peg Mr. Hilton endeavored to remove with the forceps, but only succeeded in lifting it to about half an inch. The whole limb was now raised in bed, and cold lotions applied over the fracture. No more bleeding occurred, and in about a fortnight the peg came out spontaneously, or was pushed out by granulations growing in its track. Three weeks afterwards Mr. Hilton pulled out the second peg.

On examining the leg there was no doubt that bony union was proceeding, but there was still some little yielding at the fracture, which was rendered evident on trying with some force to bend the bone at the seat of the fracture. The limb was then laid on a splint, and supported in position by side splints, and a bandage so arranged as to leave the holes previously occupied by the pegs, exposed. These apertures were covered by a bread poultice.

On June 7, four months after the introduction of the pegs, the splints were taken off, and consolidation found nearly complete. The patient left the hospital on the following day, with a bandage and pasteboard upon the leg, and was desired to continue to move about with his crutches for a week or two, and then to use his leg gradually, and with care.

July 8, 1852, five months after the operation, and one after leaving the hospital.—The patient can now walk with the aid of a stick; the bones are united, but the leg is weak, the muscles being much wasted from a protracted inaction of twenty-two months.

This is certainly a very favourable result; and this case will no doubt encourage surgeons to have recourse to the exciting action of the pegs in instances of the same kind. We should, however, be but ill discharging our duty as registrars of nosocomial facts, if we were not to mention those cases in which Dieffenbach's plan has proved unsuccessful, in spite of the best directed efforts, and in very skilful hands. We shall therefore allude, first, to a case which was treated by Mr. Bowman.

KING'S COLLEGE HOSPITAL.

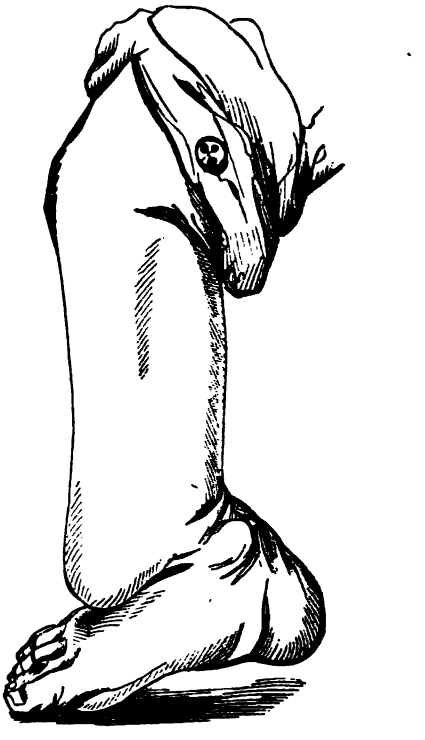
Fracture of the Tibia and Fibula at the age of three months; non-union from neglect; great deformity; operations for its rectification, the last operative measure being the use of Dieffenbach's pegs.

(Under the care of Mr. Bowman.)

The following details were obtained from the notes of Mr. Edward Atkinson, Mr. Bowman's dresser:—

William L——, aged thirteen years, was admitted, Dec. 16, 1850, under the care of Mr. Bowman. The patient lives at Norwood; is a lad of fair complexion, and the son of a labourer. He suffered a fracture of both bones of the right leg, towards the lower third, when he was only three months old. A neighboring surgeon, who was consulted by the parents, recommended that both feet should be placed in one stocking, and kept quiet; and that owing to the early age of the patient, and the consequent softness of the bones, nothing more could be done. No union whatever took place, and the boy was allowed to grow up with a considerable deformity, for which, at the age of thirteen years, he sought relief at King's College Hospital.

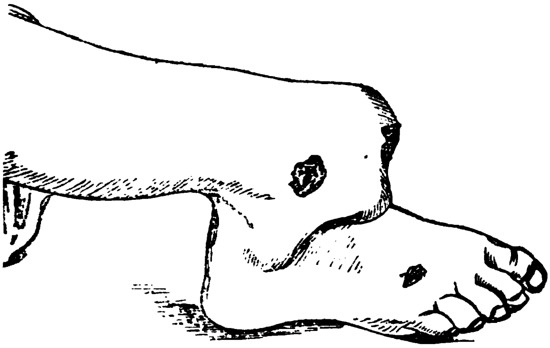
The state of the limb, on the boy's admission, is thus described: The fragments are connected by a ligamentous band at *an acute angle*, the apex of the latter forming a projecting stump, which is brought, when the boy walks, in contact with the dorsum of the foot. The result of this state of things has been, the formation of sores on both opposing surfaces. There is no anchylosis, though very little movement exists in the ligamentous connexion; the ankle-joint, however, enjoys considerable movement, especially in flexion and extension. The toes have free action; the interosseous membrane has been ruptured, and the ends of the upper fragments consequently diverge a little outwards, so that the extensor tendons are uninjured, and have sunk down between the two bones. The tendo-Achillis is curved backwards over the lower fragments, and forms a prominent free border, posteriorly. The affected leg is much behind the other in development, being two inches and a half shorter; the muscles are wasted, and the whole limb is very diminutive, as compared to the sound side.



It has been the opinion of all surgeons who have seen the patient, that nothing would be of service to him but amputation, and he has come to the hospital, under the care of Mr. Bowman, for that purpose alone.

On January 11, 1851, the boy was brought into the operating theatre, Mr. Bowman having resolved to cut down upon the fragments, and bring the ends of the bones in apposition after removing a portion of their extremities, reserving to himself the faculty of amputating the limb if this could not be effected.

Mr. Bowman began by dividing the tendo-Achillis by a subcutaneous section; he then exposed the extremities of the tibia and fibula by separate longitudinal incisions, so as to avoid injuring the extensor tendons, dissecting close to the bones all the way, that no more bleeding than necessary should be occasioned. and for the purpose of saving the soft parts. Mr. Bowman then removed an inch and a half of the upper and an inch of the lower fragments, and brought the parts together, reducing the limb to a position as nearly straight as possible. Some superfluous integument remained, but it was thought that this would most probably be of use in the course of the development of the limb. The attempt to save the foot being so far satisfactory, Mr. Bowman abandoned the idea of amputation. During the latter part of the operation the boy was a little faint, but he soon rallied.



The case was treated as a compound fracture, the patient removed to bed, the limb placed in a pair of splints, and slung in a cradle. For the first four days the patient experienced a good deal of pain, was restless and feverish; but on the fifth he slept well, and was much better, as the new fracture-box had been substituted for the cradle, and padded with sand-cushions. As the limb lay in the box, it was nearly four inches shorter than its fellow.

On the seventeenth day the wound over the tibia was nearly closed, and the other filled with healthy granulations. Mr. Bowman now flexed the foot a little more on the leg, in order to bring the fractured portions into more complete apposition. On the twenty-fifth day the fracture-box was changed for Liston's splint, altered to suit the case; a padded wooden splint was placed within it on the inner side of the leg, and the bandage carried up to the thigh, leaving a space to dress the wound over the fibula, which was not entirely healed.

Nothing worthy of note took place until the beginning of April, about three months after the operation, when the callus being found only partial, and bony union not having taken place, the boy was allowed to hobble about the ward on crutches, the leg being encased in a starch bandage. This, however, did not excite any increased action in the parts. At the end of April the patient begged to go home. and was accordingly discharged.

In June, 1851, two months after his discharge, the boy was re-admitted; he had been ill-fed and neglected at home, and permitted to go about without his crutch. The consequence was, that the little callus which had been thrown out was broken down, and the skin over the old wound had given way.

Mr. Bowman, finding that the patient was willing to undergo another trial to save the leg, determined to perform the operation recommended by Dieffenbach. On the 12th of July the patient was placed on the operating-table, and put under the influence of chloroform. Mr. Bowman made an incision, two-thirds of an inch in length, over the upper fragment of the tibia, close to its extremity, and on its anterior and outer aspect. As soon as the bone was exposed, he applied to it the Archimedean drill, and penetrated into the cancellated structure of the bone. A small ivory peg, half an inch long, which exactly fitted the orifice made, was then introduced into it, and driven in with the hammer. Another incision was then made on a level with the former, over the inner aspect of the same upper fragment, and two others over the lower fragment, and pegs introduced in the same manner as had been done for the first. The fibula was left untouched. The lower fragment was so soft that a needle could be pushed into it, so that the pegs introduced into that part required no force.

September 12th (two months after the operation.)—The first peg came away to-day; it is considerably eroded, but whether the bony matter has been absorbed, or whether softened and come away in the pus. is uncertain. The second peg was found loosened. but not quite fit to be taken out. Four days after this, Mr. Bowman removed the second peg and a small piece of sequestrum; the other two pegs remain in the bone, and the wounds are healed over. From the softness of the lower fragment in which the pegs are retained, it is to be supposed that the ivory may have been completely incorporated in the bone without having perhaps undergone any change.

Nov. 24th (four months after the introduction of the pegs.)—The union of the bones is very incomplete. Mr. Bowman advised the patient to go into the country with a single gutta percha splint and bandage fixing the ununited parts, the knee being flexed at right angles on the thigh; the boy was also desired to wear a wooden leg, so as to give the ankle perfect rest. The further information which has been received tends to show that up to the time at which we write, union had not taken place.

This is altogether an exceptional case—in fact, we are not aware that an attempt was ever made to excite union between fragments which had been lying asunder for thirteen years. It is, however, both satisfactory and instructive to follow the above-described and praiseworthy attempts at saving the boy's foot.

We understand that Mr. Square, of Plymouth. has also tried Dieffenbach's plan in a case of ununited fracture of the femur; the results were, however, likewise unsuccessful. Pegs were placed in the extremity of the upper as well as of the lower fragment, but at the end of three weeks, no attempt at union could be perceived. The thigh was subsequently amputated.

Mr. Fergusson has very lately resorted to the use of the ivory pegs in a case of ununited fracture of the ulna; we beg to adduce a few particulars:

Ununited Fracture of the Ulna.—Dieffenbach's Operation for promoting Union.

(Under the care of Mr. Fergusson.)

A. B——, aged thirty years, employed on iron works in Yorkshire, was admitted July 3d, 1852, into London ward, under the care of Mr. Fergusson. The patient is a robust man, who has always enjoyed good health; he has dark hair and complexion, and is rather of a melancholic turn of mind.

Whilst occupied in the works, thirteen months before admission, his fore-arm was caught by the machinery belt, and twisted several times round, and he sustained a severe comminuted fracture of both the radius and ulna. The man was at that time admitted into the Newcastle hospital, where it appears that union took place in the radius, but the ulna remained ununited. After a considerable stay at the hospital, where, according to the patient, the propriety of using the seton was several times discussed, he repaired to London, and placed himself under the care of Mr. Fergusson.

On examination, it was found that the patient was incapacitated from using his left arm to the usual extent, though a certain degree of strength was left in it. Some difficulty arose as to ascertaining the exact situation of the fragments of the ulna, and even whether haply both bones were not in an ununited state. It was, however, plain from the time which had elapsed since the infliction of the original injury, that none but very active measures would give a fair prospect of success.

The patient was therefore brought into the operating-theatre on the 10th of July, 1852, and narcotized with chloroform. Mr. Fergusson commenced by making a longitudinal incision behind the ulnar artery, about midway between the elbow and wrist. When by a careful dissection the bones were fully exposed, it was still somewhat difficult to distinguish the seat of the ununited fracture; but by causing the upper and lower portion of the ulna to move upon one another, it was found that the extremities of the fragments were situated in the wound just made, and surrounded by a fibrous capsule. Mr. Fergusson now passed his knife through this capsule, and proceeded to implant, with the hammer, between the ends of the fragments, a peg made of bone, about two inches long, and tapering to a fine point, having first made a hole for its reception with a common gimlet. Another hole was now made, about half an inch from the end of the upper fragments, with the same gimlet, and a second peg (ivory,) of an almost cylindrical shape, introduced. A third peg (ivory) was placed in the same manner into the extremity of the lower fragment. The heads of the two latter pegs, were cut off with the bone forceps, and the wound closed with two sutures.

Mr. Fergusson remarked, after the patient was removed, that there had been some difficulty as to finding the actual locality of the false joint; but that, with the impression that the ulna was mainly concerned, he had made the incision which had exactly exposed the injured parts. Some surgeons might have thought the passing of the knife through the adventitious capsule sufficient for the purpose of exciting inflammation; and others might have been tempted to use a seton; but he (Mr. Fergusson) had preferred introducing a foreign substance *into* the bone in the vicinity of the fracture. He had employed the simple gimlet, which answered well; Mr. Bowman had, in a similar case, used a more complicated instrument, the Archimedean drill.

Mr. Fergusson added, that the practice he had just followed was well known to have originated, a few years ago, with Dieffenbach; he was, however, bound to state, that this method had been partially carried out several years ago, by Mr. Watson, of Edinburgh. This surgeon was about to pass a seton, in a case of ununited fracture, when he found it impossible to introduce the skein between the fragments, for this is sometimes extremely difficult to accomplish. Under these circumstances, Mr. Watson thrust a silver probe between the ends of the broken bones, left it, and obtained union. It might now be asked, continued Mr. Fergusson, whether the incision or the silver probe led to the eventual consolidation. He was, at all events, far from wishing to diminish Dieffenbach's merit in suggesting the operation. In fact, it is the duty of the surgeon, in cases which present difficulty, to devise all kinds of plans, which should, however, be based upon sound reasoning. As for himself, he was uncertain, before the operation, regarding the actual mode of procedure he would follow.

Perhaps it might have sufficed to remove the ends of the fragments with the saw, with such a one, for instance, as had been invented by Mr. May, of Reading. This saw was a very ingenious but somewhat complicated contrivance, and he (Mr. Fergusson) would prefer the simple straight saw, which had the merit of acting well, and of being very cheap as compared with the circular instrument. The patient just operated upon had very good chance of obtaining union, and he (Mr. Fergusson) had very fair hopes of the case.

The man has since progressed extremely well, and the wound took on a very healthy action. About a fortnight after the operation one of the pegs became loose, and Mr. Fergusson extracted it; and one week afterwards it was found, on the bones being tried, that consolidation was already to a great degree established. It is very probable that in a short time satisfactory union will have taken place.

This case is certainly very encouraging, and well calculated to bring the *pegs* into favour. They are perhaps more useful in ununited fracture of the fore-arm or tibia than with the femur or humerus. But it should always be rembered that the most approved operative proceedings will with some patients remain unsuccessful; and the following case, which has been kindly put at our disposal by Dr. Geoghegan, surgeon to the City of Dublin Hospital, offers so instructive an illustration of this fact, that we scarcely need apologize for making our readers cross the Irish channel for a few moments, and peruse a case derived from the nosocomial practice of our Dublin brethren.

CITY OF DUBLIN HOSPITAL.

Compound Fracture of both Bones of the Fore-arm; Non-union; Pressure; Ivory Pegs; Scraping of the Ends of the Fragments; Absence of Consolidation.

(Under the care of Dr. GEOGHEGAN.)

THE patient was a young man, who had enjoyed excellent health up to the time when he met with a compound fracture of both bones of the fore-arm, which accident happened four years before he placed himself under the care of Dr. Geoghegan. The fracture was situated at the lower third of the fore-arm: it was very oblique, and had never united. When first examined at the City of Dublin Hospital, the amount of motion between the fragments was considerable.

Dr. Geoghegan had first recourse to the method of pressure, as recommended by Amesbury, and subsequently to the seton, but without advantage. It was now resolved to try Dieffenbach's plan, and Dr. Geoghegan cut down (by small incisions) on points corresponding to the middle of the fracture track of each bone. He then bored a hole, traversing obliquely the line of apposition of the fragments, and penetrating as nearly as possible the entire thickness of the latter, and introduced ivory pegs. A good deal of inflammation and suppuration resulted from these proceedings; and Dr. Geoghegan was obliged, from the intensity of these events, to remove the pegs on the ninth day after the operation. Considerable thickening about the fragments, and, as a consequence, great diminution of mobility, ensued. This was, however, not the thickening of real callus, but merely albuminous effusion, which latter was gradually absorbed, and matters remained in their former state.

When the parts had become quiescent, Dr. Geoghegan resolved to afford the patient a further chance. He practised again a small incision over the fracture track for each bone, introduced a narrow chisel upwards and downwards, and detached and broke up, as far as practicable, the ligamentous connexion of the fragments. Dr. Geoghegan strongly scraped, at the same time, the opposite faces of the latter, so as to expose *a fresh osseous surface*, and open the Haversian canals. This operation, which was subsequently repeated, produced the second time much inflammation, but no *final* benefit.

Now came the question of excision; but Dr. Geoghegan did not propose this formidable procedure, owing to the anatomical relations of the bones and muscles of the fore-arm, and the indifferent success which has attended the method of excision, (notwithstanding the statements of some of its advocates.)

The patient has since worn a gutta percha case, and was recommended by Dr. Geoghegan to try the "stimulus of necessity," and use his hand as much as possible. The result of this has yet to be learned.

Dr. Geoghegan has known a case in which the latter method succeeded (aided by restrained motion of the fragments) in the lower extremity, after other means had failed. We should not omit to mention that Dr. Geoghegan's patient, while under treatment on Amesbury's plan, was also, at the suggestion of Dr. Cusack and others, subjected to the action of mercury.

It becomes evident from the preceding cases, that Dieffenbach's method is worthy of every consideration, and that it offers a very fair chance of success in cases of ununited fracture; but this method shares the common fate, and may, though carried out with great skill and perseverance, fail to accomplish its object. Some surgeons, however, doubt its powers completely, and attribute the occasional favourable results obtained by Dieffenbach's plan to the perfect rest which is combined with the use of the pegs.

Mr. Syme, for instance, says, in his clinical remarks (*Monthly Journal of Edinburgh*, vol. i. 1852:)—"I was able to say, that in the course of twenty-five years' practice, I had always succeeded in restoring firmness by attention to the insurance of stability in the position of the limb; and I expressed a strong impression, almost amounting to conviction, that various means of remedy, such as setons, subcutaneous division, ivory pegs, &c., owed any share of the credit which they had acquired to the care conjoined with their employment to keep the bones quiet."

We may here mention a case of ununited fracture of the tibia, which was some time ago under the care of Mr. Dixon, at St. Thomas's Hospital. The fracture had remained ununited for a whole twelvemonth, when Mr. Dixon made powerful extension of the limb, upon which something was heard to crack. The leg was cased in gutta percha, and union eventually took place. Now it was suggested that if ivory pegs had here been used, they might perhaps have obtained more credit than they really were entitled to. In fact, a change of action, by whatever means, may sometimes produce union.

Mr. Poland had at Guy's Hospital a young woman, about twenty-four years old, under his care, with ununited fracture of the femur. He gave her good food and plenty of vegetables, made her walk about, cased the limb in a starch bandage, and at last obtained union.

It is extremely probable that one of the most frequent causes of non-union in fracture is an imperfect apposition of the ends of the fragments, or an interposition of muscular tissue. Incomplete adaptation has to all appearance a great share in results of this kind, and this circumstance should stimulate surgeons to pay especial attention to the setting of fractures, and to satisfy themselves, by an almost daily inspection, that the parts are actually and truly remaining in the position first obtained.

When it is considered that the usual evacuations necessitate an unavoidable amount of disturbance of the whole frame, and that these are very frequently repeated, it is surprising, as far as the femur and the bones of the leg are concerned, that ununited fractures are not more frequently met with. All patients with fractured femur should be placed on those beds which allow of all the functions being performed without the slightest shifting. It has also been suggested that a latent syphilitic taint is perhaps more frequently connected with the occurrence of non-union than is generally supposed.

We should not omit to quote the excellent results which Dr. Valentine Mott, of New York, obtained by means of the seton. (*Transactions* of the New York Academy of Medicine, analysed in *British and Foreign Medico-Chirurgical Review*, July, 1852.) Dr. Mott gives nine cases of success by using the seton in cases of ununited fracture. He also relates the case of a boy, twelve years of age, with whom the seton failed in an ununited fracture of the humerus, (1826.) "The ends of the fragments were then sawn off, and a silver wire passed through each, twisted, and brought out externally through a canula. The wire cut out from one of the bones in a few days, and the other was soon after removed. No great inflammation followed, and in a few weeks consolidation was complete." Dr. Mott calls these "wire sutures," and the writer in the *British and Foreign Medico-Chirurgical Review* remarks, "The 'wire suture' was thus employed several years prior to its adoption by Flaubert, of Rouen, to whom Malgaigne attributes its origin."

Ununited fracture, and the use of the pegs, are subjects of so much importance, that we have not hesitated to group together the preceding cases, under the impression that the collection of these nosocomial facts may prove of practical utility.

GUY'S HOSPITAL.

Amputation of the Little Finger; dangerous symptoms manifested after the administration of Chloroform; resuscitation by Galvanism.

(Under the care of Mr. Hilton.)

We are happy to state that the galvanic excitation of the diaphragm has been proved, by the following case, to be most valuable in threatened suspension of the respiratory act after the use of chloroform; and we hasten to lay the particulars before our readers, with the sincere hope that the same means will, in other hands, have similar results. The case, and the remarks which follow, have been furnished by Mr. Joseph Ewart.

C. R——, aged twenty-nine years, married for the last ten years, during which time she has been subject to fits of syncope, was admitted, under the care of Mr. Hilton, July 16, 1852. Her forehead is remarkably prominent, and the head altogether large, but the general health is good. From notes originally taken by Mr. Moon, it appears that eighteen months before the patient's admission a small swelling, accompanied in its progress with nocturnal pain, appeared on the dorsal aspect of the fifth metacarpal bone of the left hand, which swelling gradually enlarged up to about two months before the present admission. Mr. Hilton then laid it open, and extracted a piece of necrosed bone in process of exfoliation.

The patient left the hospital, after this operation, for the benefit of country air, with strict orders to maintain the hand at perfect rest. She returned on the 16th of June, 1852, with the same metacarpal bone in a state of active disease, which bone, together with the corresponding finger, at the recommendation of Mr. Hilton, she determined on having removed.

On the 26th of June, at half-past one P.M., the patient (at her own express wish) was placed under the influence of chloroform, of which three drachms were given. She had had her bowels relieved by medicine, and had only taken beef-tea for dinner. The whole of the metacarpal bone was then removed. with the exception of a small portion at the carpal extremity, which was left, to preserve the integrity of the carpal joints At the completion of the operation, during the performance of which scarcely any blood was lost, the patient manifested perfect consciousness, and answered questions slowly but correctly. As she felt comfortable, and was expressing a wish to walk back into the ward to her bed, and not be carried, she was assisted by two attendants whilst rising from the table; but no sooner did she gain the erect posture than she fell back into the arms of those who were supporting her, and relapsed into a state of insensibility. The pupils were now minutely contracted; the respiration feeble, slow, and labouring; the expansion of the chest almost imperceptible, and chiefly effected by the diaphragm; the pulse 60, feeble, irregular, and unequal in the force of its beats.

Doors and windows were immediately opened, cold air admitted, and thrown in currents across the patient's face by fanning; cold water was dashed upon face and chest, by which an occasional sighing inspiration was excited. Brandy and cold water were freely given, and strong ammonia applied to the nostrils. These means increased, for a time, the force and frequency of the pulse and respiration; but the insensibility and minutely-contracted pupils remained unchanged. Respiration was now aided by compressing the sides of the chest, with the palms of the hands firmly applied, during the act of expiration, but without satisfactory results.

Notwithstanding the continuance of the above-mentioned means, the circulation remained feeble, slow, and unsteady, the respiration progressively diminishing in force and frequency, this decline being associated with a corresponding decrease of the temperature of the whole body.

After a trial of two hours and a half of the remedies just described, as the danger was becoming imminent, the galvanic apparatus was procured, and shocks were passed over the chest and top of the spine, at the origin and insertion of the phrenic nerves, and continued during two or three minutes. This produced the happiest results, as evidenced by the following change in the symptoms:—

The patient raised her body from the bed, sighed frequently and profoundly; a general tremor, of about a minute's duration, ensued, at the end of which she opened her eyelids, complained of pain and fulness in the head, answered questions correctly, and when asked whether she suffered pain during the operation, replied that she had felt none until the ligatures were applied; pulse now 116, full, much stronger; pupils natural.

There was a tendency to relapse into a state of insensibility after the use of the galvanism; but the occasional dashing of cold water on the face, together with the internal administration of the same fluid, appeared to prevent a recurrence.

For a week after the operation, the patient complained of great fulness in the head, and cephalalgia, which considerably disturbed her night's repose. The operation has been perfectly successful; and on the 17th of July, one month after admission, she was presented cured.

This case is intended to illustrate the occasional danger attendant on the administration of chloroform, when there is a want of right proportion between the configuration of the head and the general circulation; or, at least, a temporary functional disturbance in the balance of the circulation. The details of the treatment exemplify, in a most striking manner, the utility of galvanism or electricity, in such cases, as a resuscitative agent.

The patient had been subject to fits of syncope during the last ten years of her life—a fact not ascertained previous to the performance of the operation. This shows that the history, habits of body, and possible idiosyncrasy of patients ought to be well weighed whenever chloroform is administered. The latter fluid was, upon examination, found free from any contamination or impurity, and not more than three drachms were employed. This circumstance evidently shows that the quantity of the anæsthetic agent used does not definitely predetermine the amount of influence that it shall exercise, in any given case, upon the animal economy; and proves that the effects of chloroform are modified by some peculiar or abnormal condition of the organism. We should, therefore, as stated above, always institute a strict inquiry into the history and health of the patient, so that the above-mentioned peculiarities, when recognised, may lead to an avoidance of the dangerous and almost fatal consequences noticed in the present instance.

The beneficial though temporary effects arising from the dashing of cold water upon the face and chest; from the free admittance of cold air, coupled with the internal use of brandy and cold water; from the application of strong ammonia to the nostrils, and from the performance of artificial respiration, are well shown by the manifest improvement of the pulse and respiratory movements; but after a trial of two hours and a half, these means did not succeed in dilating the pupils, restoring sensibility, or in keeping up the respiration and circulation. The galvanic shocks had not only the effect of producing a marked improvement in the pulse and respiration, but they also produced dilatation of the pupils and complete return of consciousness. That the galvanism deserves the credit of effecting resuscitation cannot be doubted, from the fact of the previous remedies having proved ineffectual, and from the speedy recovery immediately upon its administration. This case is further interesting, as showing that the tendency to relapse into a condition of insensibility, from the secondary effects of chloroform, bears a striking relation to the same phenomenon resulting from a poisonous dose of opium. We also see the necessity of carefully watching patients for some time after the restoration to consciousness has been accomplished.

CHARING-CROSS HOSPITAL.

Rapid Necrosis of the Tibia; Amputation above the knee, according to Mr. Luke's method.

(Under the care of Mr. Avery.)

There are certain operations in surgery which entail a large share of trouble and exertion on the practitioner; among these we would single out the removal of dead bone firmly encased in a new shell. This task becomes still more difficult to accomplish when the necrosed bone is not completely detached, or the new osseous case is very hard. This applies principally to long bones, for necrosis in short or irregular ones is much more easily managed, since the dead portions lie generally more superficially. We have seen necrosed parts of the os calcis and lower jaw thus removed with comparative ease; but about the pelvis the dead portion may be situated so deep that it is difficult to diagnose the kind of change which has taken place.

From the cases we have published, and from the numerous operations upon long bones which we constantly witness. we should almost be inclined to think that the trephine is not used with sufficient freedom; for it occurs very frequently that one small aperture in the new shell is not adequate to the size of the sequestrum, and does not present enough space for a proper purchase. Very great exertions are thus used with unsatisfactory results, whilst one large aperture, or two or three separate ones, would offer every facility for the removal of the dead portion of bone, provided the latter were quite detached, and ready to be thrown off. Mr. Avery's case does not, however, come under this head: there was, as in those to which we are alluding, extensive necrosis, but from the circumstances presently to be mentioned, none of the ordinary steps could be taken; amputation was unavoidable, as will be seen by the following details:

A. B——, aged fourteen years, was admitted in May, 1852, under the care of Mr. Avery. The boy, who presents various strumous characters, states that five months before he came into the hospital, he received a sharp blow on the front and middle of his right tibia. This injury was followed by a good deal of pain and swelling; abscesses formed and opened, and sinuses remained communicating with the tibia in different parts of its length. There had also been considerable inflammation of the knee-joint, which was flexed, deformed, and firmly held by false anchylosis; on admission, however, there was no active disease in the joint. A portion of necrosed bone, above five inches in length, could be made out on the front part of the tibia, but it was perfectly immovable. On probing one of the fistulous passages, the instrument entered the cancellous structure of the bone, just below the knee-joint, and came upon necrosed bone. It was likewise ascertained that the lower extremity of the tibia was much enlarged down to the ankle-joint, it being extremely probable that dead bone was also enclosed in this part of the shaft. The limb was altogether wasted, and the boy had, as above stated, all the appearance of a strongly-marked strumous habit. His inferior maxillary bone was much enlarged on the right side, also in consequence of a blow, and his general health in a declining state.

Mr. Avery, after mature consideration, came to the conclusion that amputation would be preferable to making an attempt to remove the sequestra, his opinion being supported by the following facts:—1. The immovable condition of the necrosed portion of bone. 2. The evidence of the disease having extended upwards close to the knee-joint, and downwards near to the ankle. 3. The boy's weak health, and marked strumous habit; and 4, the anchylosed state of the knee-joint.

On the 17th of May, 1852, the operation was performed, after Mr. Luke's plan. Mr. Avery made first an ample flap posteriorly by piercing and cutting from within outwards; he then made an equally large flap anteriorly *not* by piercing and cutting as was done with the posterior flap, but by carrying the knife in a curved direction, antero-posteriorly through skin and muscles, down to the bone. The exact shape of the flap can thus be distinctly delineated, and made with great regularity, exactly to the size best calculated to make a good stump. The appearance of the latter immediately after the operation, showed very forcibly the advantages of this method, as the two flaps formed at once a symmetrical thick and clean cushion for the bone. Nor did the appearance of the stump, when cicatrization was complete, prove less satisfactory. A fortnight after the operation there was only a very slight discharge at one angle of the wound, the latter having almost all healed by first intention. One month after the amputation, the stump was as round as a ball; it offered a perfect model of its kind, and Mr. Avery expressed the opinion that it was quite impossible to get so ample and good a flap anteriorly, by the ordinary method of transfixing and cutting from within outwards, as had been obtained in this instance by Mr. Luke's method.

A longitudinal section of the tibia in its entire length brought to light a large sequestrum, five inches long, and half the thickness of the shaft, firmly impacted, but still capable of being removed, by using a certain amount of force. There was, however, a considerable portion of dead bone enclosed in the cancellated structure, somewhat higher up, and very near to the epiphysis, and another equally near to the inferior epiphysis. The latter sequestrum was surrounded by a considerable thickness of new deposit. Both these sequestra were imbedded in a gelatinous substance of a light yellow colour, having no resemblance with pus. Was this simply strumous matter? or was it a fibrinous exudation thrown out in view of the formation of new bone? Both the epiphyses were sound, but the knee-joint was firmly fixed by adventitious structures, and partly dislocated.

There are examples in the annals of surgery of very rapid death of certain long bones, but authors and practical men agree that this pathological change is of rare occurrence. The destructive process was in Mr. Avery's case especially quick: five short months, and almost the whole shaft of the tibia had perished. The knee-joint was disorganized, and the local mischief had so completely affected the system, that no chance was evidently left but to remove the source of irritation. It is to be hoped that this operation, the rest, good food, and appropriate treatment which this boy had in the hospital, will have so modified his diathesis as to arrest the development of the same pathological phenomena in the jaw as have appeared in the tibia. Indeed, the enlargement of the former had on the patient's discharge, considerably diminished.

A case of a similar character was some time ago reported in the "Mirror." Mr. Stanley, under whose care the patient was placed at St. Bartholomew's Hospital, was likewise obliged to amputate above the knee, the patient (a girl of fourteen years) having been attacked but two months before her admission with acute inflammation of the knee-joint and the shaft of the tibia, followed by the complete death of the latter.

We saw the stump shortly before Mr. Avery's patient left the hospital, and we must confess to having hardly ever seen such a thick, regular, firm, and healthy-looking stump. We earnestly hope that Mr. Luke's method will be more extensively adopted; for it may be suspected that the necrosis of the extremity of the divided bone, which occurs so very frequently after amputation of the thigh, and which is so harassing, both to the patient and the surgeon, is owing to the defective covering which the bone sometimes obtains when amputation is performed according to the ordinary method of making flaps. Nor should it be forgotten that the skin and areolar tissue, which are intended to protect the bone after the circular operation, are sometimes very weak and thin, and that the extremity of the bone not unfrequently protrudes through them.

The objection sometimes brought against the ordinary flap operation, and which would hold good against Mr. Luke's, is that the wound made by the knife is much more extensive than is the case with the circular amputation. But as with chloroform we have no shock, and since the amount of the suppuration is pretty well the same in both operations, the objection falls to the ground; the more so as it is proved that when the flaps are well made, after Mr. Luke's plan, there is much chance of union by first intention, and the immense advantage of a firm, round, and healthy stump. Mr. Avery's case presents us with an excellent illustration of the good effects of the method above alluded to; we harbour the hope of being soon afforded the opportunity of recording another.

Fissure of the Soft and Hard Palate; Operation.

By Mr. Avery.

We dilated a little time ago upon the important improvements which have been introduced in the operation for cleft palate by Mr. Fergusson, and we are glad to find that this new method of operating is more and more adopted by practical surgeons. Mr. Avery, amongst others, has published the very satisfactory results which he has obtained from the division of certain muscles connected with the soft palate, and as we had a few days ago an opportunity of seeing Mr. Avery operate at this hospital, upon a very complicated case, we shall just point out the facts which most attracted our attention:

The patient (a young woman about twenty-four years of age) was born with harelip, and a fissure both in the hard and soft palate. The harelip was formerly rectified in the country, but the cleft palate had not been interfered with. The most interesting portion of the operation was the difficult task of detaching the tough tissues adherent to the hard palate, and lined with mucous membrane. Mr. Avery used for that purpose two instruments which rendered him great service: a scalpel, the cutting portion of which is at right angles with the stem, and scissors whose extremities are disposed in the same manner. These instruments, when introduced between the soft parts and the bone, will cut laterally; but it is nevertheless very difficult to render the former flaccid by disconnecting them sufficiently from the bone, as the locality offers a great many obstacles. Nothing of the kind could, however, be attempted, were not the surgeon aided by the courage and perseverance of the patient; the latter displayed in this instance great patience and fortitude.

The hæmorrhage was somewhat considerable, but Mr. Avery at last succeeded in detaching the soft parts from the bone, to the extent of half an inch transversely; and so disconnected were they, that they assumed all round the fissure a whitish aspect, and were quite flaccid. One point worthy of notice is, that by the above-mentioned measures the irritability of the air-passages and fauces becomes so blunted, that the subsequent passing of the ligatures produces hardly any cough or uneasiness. Mr. Avery, after having pared the margin of the soft fissure, placed the first of his threads, by the ordinary manipulation, about an inch behind the incisor teeth, and the four others (the threads being of alternate thickness) at short distances from one another down to the uvula.

It was now seen that the two halves of the soft palate did not meet so readily as the division of the levator palati and palato-pharyngeus might have led the surgeon to expect, but the apposition became quite perfect after Mr. Avery had freely carried his knife transversely through the anterior arch of the soft palate (palato-glossus.) A small aperture is left close to the incisor teeth, which, by means of the blistering fluid, will, in all probability, unite, though it should be recollected that the ligatures over the hard palate are very apt to tear through the structures.

We have merely given our impressions, in some degree, after witnessing this operation, and shall be happy to note down the final results of the case. It is by no means unlikely that great strides will, before long, be made in the mode of proceeding for the rectification of fissure of the hard palate, if we may judge from what we have seen this day.

KING'S COLLEGE HOSPITAL.

Scirrhus of the Testis; Removal.

(Under the care of Mr. Fergusson.)

Mr. Paget, in his late much-admired lectures at the Royal College of Surgeons, devoted the two last to a series of arguments founded upon well-ascertained facts, which arguments went to make it extremely probable that cancer is a "blood disease," and that the latter will become manifest when an "apt locality" concurs with the morbid condition of the blood." Now, if the essence (so to speak) of cancer is proved to be a *virus*, the question arises, whether there is but one kind, the manifestations becoming different according to the "apt locality;" or whether there are different kinds of this virus, (as Mr. Carmichael thought that there were several kinds of the syphilitic virus,) giving rise to the different forms of cancer with which we meet in practice. If we mistake not, Mr. Paget inclines for cancerous "unity," or at least for an intimate relation of the different forms of cancer. No doubt some of these forms find more readily an "apt locality" in certain organs than in others: thus we find the testicle much more frequently attacked with medullary than scirrhous cancer. Yet examples of this latter form affecting the testis occur now and then, and we beg to offer this day a case, lately under the care of Mr. Fergusson, in which hard cancer was manifested in the testicle. Whether the scirrhous growth was the result of a "natural transformation," as Mr. Paget calls it, we will not pretend to say, but we are anxious to record the fact.

John C——, aged thirty-four, was admitted Dec. 13, 1851. under the care of Mr. Fergusson. The patient is married; his wife has borne him six children, of whom *none* are alive. Both his parents lived beyond sixty; his father suffered from disease of the testicle for the latter years of his life, but the actual kind of affection cannot be learned. About two years ago, the patient felt great pain in the loins, which, with slight intermissions, has continued up to the present time. Four or five months before admission he observed the right testicle to increase and to become excessively hard, the induration gradually creeping up the cord. There is a sharp, lancinating pain felt through the substance of the organ, worse during the night, and the uneasiness is referred to the lumbar plexus of nerves; there are no enlarged glands in the groin.

On examination, a hard, pyriform body is found to occupy the right side of the scrotum, extending into the groin; the form and feeling of both cord and testicle are entirely lost, but the left testicle is perfectly healthy. Mr. Fergusson used an exploring needle, which yielded serum tinged with blood. On Dec. 20, 1851, the whole mass was removed in the usual way; the tumour presenting, on a section, the same characters as scirrhus of the breast. In the middle of the cancerous induration was a cyst of small size, which contained a few coagula. The patient was discharged six weeks after the operation, the parts being completely cicatrized.

Gout from Infancy.

(Under the care of Dr. Todd.)

Most of our readers are aware that Dr. Todd strove to prove, in his Croonian Lectures at the College of Physicians, in 1843, that gout and rheumatism are "diseases of the blood," which owe their origin either to hereditary contamination, to some check upon one or more of the ordinary excretions, or to the supply of nutrient material to the blood being too great for the rate at which excretion is carried on. This doctrine has, since the above-mentioned period, been gaining much ground among physicians, and forms the basis of the prophylactic, palliative, and curative treatment generally adopted. The term "blood diseases," if taken too literally, would, however, convey an erroneous idea of the theory; for one moment's reflection will show, that whatever contaminates the blood must, by the process of nutrition, produce more or less alteration in the solids. Dr. Todd says, with reference to this mutual influence," Now gout is primarily induced by errors of diet; these give rise to defective assimilation, from which results a contaminated blood. This, in its turn, nourishes the tissues badly, which consequently share its impurity, and they, in restoring their effete particles to the current of the circulation, again contaminate the nutrient fluid, and the secondary organic compounds, which result from the decomposition of these tissues, are of an impure kind. A person who has had a single attack of the disease, (not having inherited it himself,) and who by regimen and other means has restored the healthy nutrition of his system, would not, probably, transmit the disease to his offspring; but one in whom the diathesis has been fully established, even although he may have been exempt from an acute attack, must, in all probability, be the medium of conveying the seeds of this malady to his posterity."

This latter remark has a very important bearing with regard to all hereditary diseases, especially syphilis; and there is little doubt but that a great many morbid phenomena in children and young people, which seem to defy explanation, as no outward manifestation is discovered in the father or mother, may be accounted for by this kind of latent deterioration of the parent blood.

As to hereditary transmission in gout, no one questions it; but a point not as yet quite ascertained, is the period of life at which the development of the morbid germ takes place. Whilst following Dr. Todd through his wards, we were forcibly led to the consideration of this question, by seeing a patient affected with gout, who had suffered from the disease ever since her childhood. Here the fact of hereditary transmission was sufficiently plain, but the short incubation, as it were, was a fact of unusual occurrence. We shall just adduce the principal features of the case.

Hannah N——, aged twenty-eight years, of diminutive size, and looking younger than she is, was admitted under the care of Dr. Todd, in May, 1852. The patient is married, and has had several children, of whom, however, none are living; she had three abortions, one premature birth, and her fifth child lived but twenty-two months. Her father has had symptoms of gout.

At a very early age she was suddenly seized with pain in the great toe, which latter had been slightly injured a few days before. The part became inflamed and swollen, but the pain soon shifted to the other great toe, and successively attacked the ankles and knees. The patient had many of these gouty fits in the course of the following eight years—about three or four per annum—the disease being all this time confined to the lower extremities. For the last nine years, however, the shoulders, arms, and hands, have also been affected, the attacks coming on much more frequently, and occurring almost every mouth. Two years before admission, the woman kept her bed for a twelvemonth, entirely disabled by the gout. During the intervals of the paroxysms she has never been entirely free from pain and stiffness in the joints; the attacks generally came on during the night, and the poor creature has suffered a considerable amount of pain.

On admission, the knees and ankles were the parts principally affected; a little roughness was heard on moving the great toe and the thumb on the right side, and both joints, could be flexed only to a very limited extent. No gouty deposit was observed on any joint except the metacarpo-phalangeal articulation of the little finger of the left side, but the patient stated that she is very subject to these deposits on the occurrence of severe attacks, but that they soon afterwards disappear. The woman suffers very frequently from violent pain in the stomach, followed by vomiting, headache, and loss of memory. The catamenia are habitually profuse, but frequently irregular; when so, she is sure of having a fit of gout. She has, as may well be imagined, taken medicines of various kinds, which gave her relief at the time, but no permanent benefit, as the disease seems to be very deeply rooted in her system. The urine is generally of a dark colour, and presents very frequently a red sediment; specific gravity, 1·019.

We have been thus careful in detailing this patient's history, as there are few examples where gout has taken so early and firm a hold of an individual. Nor is it a common occurrence to see *females* thus attacked; and none but a direct hereditary influence could have been at work in a case of this nature. Dr. Todd used chiefly quinine, in order to combat the symptoms previously enumerated; much relief was obtained by the remedy, and the patient left the hospital towards the end of June, greatly improved, but of course just as obnoxious to attacks of gout as before. No doubt, however, that her mode of life and the place of her residence (Drury-lane) contribute powerfully in exciting the morbid manifestations which are due to an hereditary taint.

As to the mode of transmission of this taint, Dr. Todd says, in the above-mentioned lectures:—"The generative act is, in its essence, one of secretion, the embryo being the result of the combination of the two secretions, the one formed by the mother, the other by the father. The secretions are composed of matter separated from the blood of each parent respectively, and it is obvious that the body which results from the union of both must partake of the properties and characters of both. . . . . . . When, then, a disease is capable of being transmitted from parent to child, we may assume that it is a disease of nutrition,—one in which both solids and fluids are imbued to a greater or lesser degree with the morbid element, and which is transmitted through the *fluids*, the source of all secretions." As to the materies morbi lying in the blood, there can hardly be a doubt, and we followed Dr. Todd's reasoning on this head with so much pleasure, that we cannot refrain from finally quoting this important passage of the lectures:—

"It seems impossible to explain the phenomena of gout upon any other hypothesis than that which supposes the existence of a peculiar matter in the blood. We cannot regard it as a local affection; such a supposition will not explain its sudden shiftings from one place to another, nor the simultaneous affection of several joints, nor the constitutional disturbance which precedes a gouty attack; still less will it account for that train of morbid symptoms, the aggregate of which constitutes the gouty diathesis. Nor can we suppose it to be a peculiar affection of a particular class of textures; for although the fibrous textures and others connected with joints are most obnoxious to it, it by no means limits itself to them, for *all* textures and *all* parts which the blood visits, are liable to be attacked by it. Moreover, neither of these diatheses will account for the proneness of the paroxysm to occur in low and depressed states of the system. We can therefore look for an exposition of the phenomena of this disease only to that hypothesis which supposes it to result from a contaminated blood."

Melanotic Tumours in different parts of the Trunk.

(Under the care of Mr. Fergusson.)

The patient is a man thirty-two years of age, following the occupation of interpreter; he is pretty stoutly made, with light complexion and red hair, and has generally enjoyed good health. This man had been under Mr. Fergusson's care several months before his present admission, (Feb. 20, 1852,) when small melanotic tumours had been removed. The first abnormal growth he had presented was a nævus on the left side of the abdomen; this growth was tied, and fell off in due time. On the same spot, however, a tumour sprung up, which on being removed, proved to be of a melanotic character. The patient remained well for some time, when a growth of the same kind sprung up in the groin, which, on admission, had attained the size of a small orange; and several smaller tumours presented themselves on the left side of the umbilicus, varying from the size of a shilling to that of a pea.

On the 28th of February, 1852, Mr. Fergusson proceeded to remove the tumour in the left groin, which even exteriorly showed some of the characters of melanosis. The dissection required a great deal of care and neatness, for the growth was lying exactly over the femoral artery; no large branch was, however, divided, and the rest of the above-mentioned tumours were successively removed.

Mr. Fergusson took occasion to remark that this was a rare disease, the malignancy of which was unfortunately but too well ascertained. He believed that tumours of this kind were not originally malignant, but that at a certain period they degenerated into cancer. If any doubt existed as to the melanotic nature of these tumours, the section which had just been made would dispel it, as both cut surfaces present a deep black colour. Mr. Fergusson could not say whether, in the event of a third recurrence of the disease, it would be advisable to interfere again; this patient must, however, run these chances. Mr. Fergusson would remind the pupils of the case of a female who was operated upon some months since for a melanotic tumour in the groin; she has been quite well since.

Recurrence of an Osteo-cartilaginous Tumour, connected with the Nasal Process of the Superior Maxilla; Second Removal; Recovery.

(Under the care of Mr. Partridge.)

Amongst the tumours which are apt to re-appear on the cicatrix, or near it, after removal, is the cartilaginous tumour; and though the recurrence of the growth may perhaps not be very alarming, it is nevertheless a matter of great importance to the patient, as a malignant degeneration has, in similar cases, been known to occur. One of the latest authorities on innocent and malignant tumours expresses himself as follows:—"We must conclude, I think, from these cases, that although the general rule of innocence of cartilaginous tumours is established by their usual history, by numerous instance of permanent health after removal, and by cases in which, after death, no similar growths are found in lymphatics or internal organs, yet recurrence after operation may ensue. And I think that when this happens it will generally be found that the recurring growths, if not the original growths also, are soft, rapid in their increase, and apt to protrude and destroy adjacent parts, (see below the destruction of turbinated bones;) as if we had again, in these, an instance of that gradual approximation to the completely malignant characters, of which I spoke in the last lecture." (Paget—"Lectures on Tumours, delivered at the Royal College of Surgeons, in May, 1851," page 70.)

The following case, taken from the notes of Mr. Ulermark, dresser of the patient, offers an instructive example of such a recurrence.

Henry M——, aged nineteen, a potboy, was admitted, April 24, 1852, under the care of Mr. Partridge. Twenty months since, the patient perceived a small pimple on the right side, about half way down the nose, which increased slowly in size for eight months, when he was admitted into St. Thomas's Hospital, under the care of Mr. Le Gros Clark. The latter removed the tumour, which was then the size of a small walnut, very hard, and probably fibrous; the wound healed up in a month, and the boy was discharged. Three months before his admission into King's College Hospital, he caught cold, and the upper lid of the right eye became swollen. The swelling soon changed to the site of the old tumour, and has continued increasing up to the present time; it is now as large as a hazel-nut, and is distinctly fluctuating.

The second day after admission the abscess burst, and discharged a good deal of purulent matter; twenty-three days afterwards the part presented the following characters:—The tumour is about the size of a large walnut, oblong in shape, and seems to be immediately under the skin; it does not cause any projection into the mouth, nor is the eyelid at all elevated by it, and there is no evident enlargement of the anterior wall of the antrum. The patient can breathe well through the nostril, though a superficial abscess has again burst.

On June 5, 1852, forty-one days after the boy came into the hospital, Mr. Partridge proceeded to remove the tumour. He began by making an incision from the inner angle of the orbit, by the side of the nose, along the base of the tumour, cutting through the upper lip a little to the right side; and the integuments being turned back, the external surface of the tumour was completely exposed. The latter was evidently of an osteo-cartilaginous character, and projected slightly into the antrum, involving the nasal process of the superior maxillary bone. The tumour was easily removed, as were also both the superior and inferior turbinated bones, on account of their hanging loose in the cavity of the nose. The septum and roof of the nasal fossa were quite sound. The lip was secured by long pins, and five sutures put on the margins of the wound.

Sixth day after the operation.—On the removal of the pins, the parts were found to have united, except at the internal angle of the mouth. The nose was ordered to be syringed with lukewarm water. A good deal of matter was for a few days discharged from the posterior nares into the mouth, but the patient went on extremely well, and was made an out-patient June 25, twenty days after the operation, the whole wound being healed, except by the inner canthus of the eye.

Fracture of the Os Calcis.

(Under the care of Mr. Partrige.)

It happens so seldom that the os calcis is fractured, and it is so much more frequently the case that the tendo-Achillis is ruptured by the effort the patient makes to save himself, that we shall just mention the following case.

Agnes S——, aged fifty-three, was admitted July 16, 1852, under the care of Mr. Partridge. Whilst walking in St. Andrew's-street, Holborn, where the pavement is very high, the patient slipped off the kerbstone, and hurt her foot. She was brought to the hospital in a cab, when Mr. Partridge discovered a fracture of the upper part of the "os calcis" on the left side, the tendo-Achillis drawing the fractured portion three inches upward. She has all the motions of the foot but extension. Ordered a straight splint to the outside of the leg, which latter is to be kept in the semi-flexed position. The patient has progressed very favourably, and on the 6th of August union was almost complete.

ST. BARTHOLOMEW'S HOSPITAL.

Strangulated Hernia in a Child ten weeks old; Operation; Recovery.

(Under the care of Mr. Lawrence.)

Among the numerous cases of strangulated hernia which are operated upon in our hospitals, there are now and then very young subjects, affected either with congenital or accidental hernia. These patients are for the most part only a few months old; and it is a fact worth remarking, that, as far as we have seen, children between five and ten years of age are very seldom brought into operating theatres for the relief of strangulated hernia, whilst the operations are pretty often required in mere infants. It will be seen by the following case that success may attend the use of the knife in patients only a few weeks old, though apprehensions may no doubt be justly entertained with children of so tender an age, for it happens now and then that they very quickly sink after the operation. We recollect a case of the kind where the division of the stricture allowed a great portion of the small intestines to slip out of the abdomen through the ring, so much so that the greatest difficulty was experienced in returning the mass. The child in that case survived the operation but a very short time. We are glad to say that Mr. Lawrence's little patient has done very well, and we proceed to detail the case from the notes of Mr. Smith, Mr. Lawrence's house-surgeon.

Edward T——, an infant only ten weeks old, who, with the exception of a cough, has been healthy from its birth, was brought to the hospital on the 14th of November, 1851, with an oblique inguinal hernia on the right side, and was placed under the care of Mr. Lawrence.

The mother states that the child had been crying and coughing a good deal, two days before admission, and had continued to do so day and night. On removing the napkin on the following morning, she perceived the swelling of the right side of the scrotum; the bowels had, however, been relieved the previous evening. The woman took the child to the parish surgeon, who tried for about three minutes to reduce the rupture; but he could not succeed, and advised the mother to bathe the part with warm water, and then put on a poultice. The child was also given an opening powder, which produced no effect. The boy vomited a yellowish fluid several times during the following night, as also on the morning when he was brought to the hospital.

On examination, the parts were found swollen and tender; the child appeared pale and anxious, and continued to vomit a fluid deeply tinged with yellow. He was at once put into a warm bath, and after a lapse of some minutes an attempt was made to reduce the hernia. The tumour was somewhat less swollen, but very painful; and as the taxis did not produce the least effect upon it, the efforts at reduction were not persevered in for more than two or three minutes. The child was seen at one o'clock P. M., by Mr. Lawrence, who advised an immediate operation, as the parts were very tense, and the previous attempts at reduction had failed.

The little patient was in such a precarious state, that it was not deemed advisable to administer chloroform. Mr. Lawrence rapidly divided the skin and subjacent tissues, and exposed the sac, which proved to be formed of the tunica vaginalis. A knuckle of intestine of a deep claret-colour was thus exposed, together with the testicle, which appeared congested, the epididymis being also of a dark slate-colour. A director was with some little difficulty, passed into the abdominal cavity, and the stricture divided; the intestine was returned, the wound closed with a couple of sutures, and the child put to bed.

He took the breast about an hour after the operation, but vomited the milk occasionally, which latter was, when rejected, slightly tinged with yellow. The bowels acted between four and five o'clock in the afternoon, (the child had been operated upon at one o'clock,) and again during the night. The patient slept at intervals, but was rather restless. On the next day, the parts were somewhat swollen and inflamed; the sutures were removed, and a poultice applied. The boy seemed uneasy during the day, and vomited the milk twice; the latter, however, was not tinged yellow as before. The bowels acted three times in the course of the day. On the third morning, the child was reported to have passed a quiet night; he looked better, and took the breast well; the sickness had quite stopped, and the bowels were freely open.

This patient went on favourably for the fourth and fifth day, but on the sixth he again became restless, and the bowels remained confined. Towards evening they were slightly relieved, and on the following morning a teaspoonful of castor-oil was administered, which acted freely. From this time, the little patient never had an unfavourable symptom, and was discharged ten days after admission, with the wound just closed.

A feature worthy of remark in the preceding case is the caution with which the taxis was employed. It is very likely that the issue would not have been so favourable had efforts at reduction been long persevered in. In fact, it is sometimes hardly fair to lay failures at the door of the operator, when cases are sent to him in which dangerous inflammation has already been excited by rough handling. Early operations are especially called for in very young subjects, and in illustration of this position we beg to refer to the following cases at University College Hospital:—

Strangulated Hernia in a Child five months old; Operation; Recovery.

(Under the care of Mr. Erichsen.)

The following particulars were obtained from the notes of Mr. Turle, Mr. Erichsen's house-surgeon.

Arthur C——, aged five months and a half, was admitted April 12, 1852, under the care of Mr. Erichsen. It appears that when the boy was three weeks old, a hernial tumour appeared in the right groin; it could be easily reduced, and would only come down occasionally—viz., about once a week. The tumour then used to remain apparent for several hours, and afterwards ascend spontaneously into the abdominal cavity. When the child was four months old, a truss was applied, but the apparatus proved ineffectual, as the tumour appeared again on the following day by the side of the pad. The truss seemed also to cause considerable pain, and the mother therefore brought the child to the hospital.

The little patient was found, on examination, to be affected with oblique inguinal hernia of the right side; the intestine had descended into the scrotum, and was greatly distending it. There were, however, no symptoms of strangulation at the time; some attempts were made to reduce the tumour, but these having failed, the mother was desired to leave off the truss and to bring the child immediately she perceived any unpleasant symptoms.

Six weeks after this (April 12, 1852) the mother applied to Mr. Erichsen again, as alarming signs of strangulation had manifested themselves. The tumour, which had remained unreduced, was now large and tense, its neck appearing to be tightly constricted by the external abdominal ring. In following the intestine down into the scrotum it was remarked that the latter was not only distended by displaced intestine, but likewise by fluid secreted in the cavity of the tunica vaginalis, so that the child was suffering both from strangulated inguinal hernia and hydrocele. Constipation and vomiting had been existing for some time, the surface was cold, the face pale and drawn, and the patient evidently in a very precarious state.

The mother, having been told of the dangerous condition of her child, readily consented to the performance of the operation, and Mr. Erichsen proceeded as soon as the child was narcotized by chloroform. The integuments were divided over the neck of the tumour, and the several layers of cellular tissue and fasciæ having carefully been slit open, the sac was fairly exposed. The constriction was now found to be exerted by the external abdominal ring, and a few transverse fibres of the cremaster muscle; a curved director was passed beneath these parts, the strangulating structures were divided by an incision directly upwards, and the protruded intestine returned with facility without the peritonæal sac having been opened. The edges of the wound were approximated with sutures, and the whole secured by a compress and a double-headed roller.

Three hours after the operation a copious liquid motion was passed, the child being perfectly quiet and composed. On the following day he was in a very satisfactory state, and the wound looked very healthy. From this time the little patient progressed most favourably; he had no bad symptoms whatever, became cheerful, and improved much in appearance. The bowels were open daily, and the child left the hospital, the wound being quite cicatrized, eighteen days after admission.

It will be perceived that the taxis was not tried at all in this case when the symptoms were fully established; and that this cautious conduct has a marked and beneficial influence on the issue, is clearly seen, by the success here obtained. We cannot help noticing, in reviewing this case, the baneful effects of the common spring truss in infants; nor can it be otherwise, for it is next to impossible that the pad should exactly compress the ring with infants at the breast. It is equally difficult to regulate the spring in such a manner as to prevent the truss from slipping, without using an amount of pressure which must of necessity be hurtful to the child. Nothing will answer in such cases but elastic belts, which yield without becoming displaced when the infant cries; the belt being supplied with an air-pad, as suggested by M. Bourjeaurd, which shall be gently lodged upon the ring, and be made softer or harder by means of the stop-cock, as occasion may require.

Mr. Erichsen has operated in private practice upon extremely young children with varied success; we shall just allude to two of the cases, as we are anxious to accumulate facts bearing upon operations for strangulated hernia in infants.

Strangulated Congenital Hernia in a Child ten weeks old; Operation; Death.

(Under the care of Mr. Erichsen.)

Mr. Erichsen was requested by Mr. Tweed, on the 11th October, 1850, to see a child ten weeks old, who was suffering from strangulated hernia. The child had passed no flatus nor fæces for three days, and during the last two had been constantly vomiting thin, yellow matter. The ordinary domestic remedies having been tried in vain to open the bowels, Mr. Tweed was called in, who detected the hernia.

On examination, fæces were found in both tunicæ vaginales. On the right side, the canal and rings were occupied by a very tense inguinal hernia, which descended into the upper part of the scrotum above the hydrocele. Mr. Erichsen at once proceeded to operate upon this hernia, after having ineffectually tried the taxis a little time. The incisions having been made in the usual direction, the structures, which were very thin, were carefully dissected, the tensely-stretched external abdominal ring divided on a director, and the sac opened, exposing a knuckle of chocolate-coloured intestine. The stricture, which appeared to be in the neck of the sac, was then divided upwards, and it was so excessively tight that Mr. Erichsen found some difficulty in getting his finger-nail underneath it. The intestine was then returned, and a few stitches having been put into the wound, a pad and bandage were applied.

When the sac was opened, the hernia being a congenital one, the spermatic cord and testis were of course exposed. These were deeply congested, the latter especially being of a dark purple colour, and looking like a sloe. A small quantity of calomel was given to the child every third hour, and chamomile fomentations were applied to the abdomen; but he died on the fourth day after the operation, without the bowels having acted.

On examination of the body, it was found that the portion of intestine that had been constricted was gangrenous, never having recovered itself so as to carry on peristaltic action. There was traces of general peritonitis.

Strangulated Congenital Hernia in a Child ten weeks old; Operation; Recovery.

(Under the care of Mr. Erichsen.)

On the 12th of January, 1851, Mr. Erichsen was requested by Mr. Greenhalgh to see a child nine weeks old, in whom an inguinal hernia had descended for the first time, on the preceding day, during an effort at vomiting. Since that time there had been constant sickness and constipation.

On examination a very tense congenital inguinal hernia was found in the right side, descending into the scrotum. There was no abdominal tenderness; the pulse being 118, and soft. The taxis was now gently tried in a warm bath, under the influence of chloroform, but without success. Ice was then applied to the tumour for two hours, a couple of drops of laudanum given, and the taxis again but unsuccessfully tried under chloroform.

The operation was now perforrmed by Mr. Erichsen in the usual way. On opening the sac, which was very thin, and contained but a small quantity of fluid, a long knuckle of dark maroon-coloured intestine was found lying in the tunica vaginalis. The stricture, which was in the neck of the sac, was now divided upwards and the gut returned. The testis and cord were dark and congested, as in the last case. Stitches having been put into the margins of the wound, and a pad and bandage applied, one drop of laudanum was administered every sixth hour. The child made a perfect recovery.

Epidemic of Carbuncular Inflammation of the Lip.

(Cases under the care of Mr. STANLEY and Mr. LLOYD.)

An epidemic of carbuncular inflammation of the upper lip has been reigning for some time past, and the disease has proved in some instances extremely severe and even fatal. Cases of this affection have occurred in various hospitals, but it would appear that by far the larger portion have been admitted into this institution. It is worthy of remark that the number of cases of common carbuncle is not in the least diminished by the above-mentioned epidemic—indeed, they seem to have greatly increased. The size of the sores is here and there enormous (as large as a dessert-plate,) and the fact obtrudes itself upon the observer, that there is now reigning one and the same epidemic, attacking either the nape of the neck or the upper lip.

It is particularly to the latter affection that we wish to draw attention, for we are not aware that it has been described by surgical writers. Indeed, when it was first observed at St. Bartholomew's Hospital, the general impression was, that it depended on some local irritation, or was the result of some noxious influence connected with the patient's trade. But no such idea can now be entertained, for the numerous cases which present themselves all point to a generally-diffused epidemic action. Of what nature the poison may be, is, however, somewhat difficult to discover; but one fact should nevertheless be noticed—viz., the recurrence of the epidemic at the hot season of the year, and also the circumstance that the cases have been far more numerous this very hot summer than they were last year, when the temperature was uniformly lower.

It would be interesting to ascertain whether cases of this kind have been at all observed in private practice among the middle and higher classes of society, in order to determine whether the great heat, *combined* with the effects of unhealthy dwellings or trades, is the chief agent in the production of the pathological phenomena to which we are alluding.

We know of one case, in which the subject was a surgeon, whose symptoms were very severe. The patient was under the care of Mr. Wormald. and recovered completely. Free incisions and stimulants formed the principal features of the treatment.

The cases have been so numerous at this hospital, that we shall not attempt to particularize them,—indeed, the symptoms were very much of the same nature in all instances, the difference lying principally in the more or less intensity. The principal phenomenon presented is an enormous swelling of the upper lip, arising gradually from a pustule, which springs up at some part of the upper lip. The heat, pain, and redness do not keep pace with the œdema, which latter is the most striking symptom. This is generally carried so far, that the whole face becomes frightfully swollen, as is seen in the worst cases of erysipelas. Such distension and infiltration must necessarily be followed by sloughing of the cellular tissue; and this change is made very evident by the aspect of the parts after the incisions which are generally made through the œdematous textures. The fever which accompanies these severe local symptoms is generally of the typhoid type, and so much so that support is clearly indicated. We shall just sketch a few of the cases which have come under our cognizance:—

Henry F——, aged nineteen years, a robust young man of fair complexion, and a copper-founder by trade, was admitted into Darker ward, June 17th, 1852. The patient has always been very moderate in his habits; and being suddenly seized with pain and swelling in the upper lip, he presented himself to Mr. Wormald as an out-patient, three days before his admission into the hospital. Mr. Wormald made a free incision into the already considerably swollen parts, which procedure was followed by a good deal of bleeding. The affection had begun by a small boil in the lower part of the groove of the upper lip. As the pain and swelling went on increasing, the boy was taken into the hospital.

The whole of the upper lip was at that period enormously swollen, as well as the right side of the face, the whole being brawny and hard; the eye was closed, and the patient could hardly speak. The thickness of the tissues about the lip and face is certainly increased fourfold, and the aspect of the countenance is frightful. The tongue cannot be protruded, the pulse is small and frequent, the skin hot, the secretions scanty, and no sleep can be obtained.

Mr. Stanley made several incisions in various directions, and gave exit to some purulent matter and blood; Dover's powder was given at night, acetate of ammonia in the day, and several ounces of wine.

In spite, however, of repeated incisions, and plentiful support, the patient became daily worse, and died four days after admission. On a post-mortem examination, purulent deposits were found in the lungs, and extensive adhesions of the pleura.

Second Case.—Illustrating the mild variety.

James P——, aged nineteen years, of fair complexion, a stay-cutter by trade, and who has lived rather freely, was admitted into Colston ward, June 17th, 1852, under the care of Mr. Lloyd. Two days before admission, the patient noticed a pustular elevation upon the upper lip, on the right side, and the whole of that half of the face swelled considerably in the space of three hours. He did not experience much pain, but the tension of the parts was very disagreeable. As the size of the lip and face, as well as the pain, went on increasing, the young man applied to the hospital.

On examination, the whole of the right side of the face was found œdematous, hard, pale-red, and glossy; the lip everted, and increased to about three times its natural size. The patient does not experience very much pain, except when the parts are pressed. The constitutional disturbance is not so great as in the preceding case; the tongue is clean, and the pulse 90, with tolerable power. Leeches, fomentations, and poultices were used in this case. Internally the patient took the acetate-of-ammonia mixture, and mild purgatives. The symptoms were gradually subdued by the further use of leeches. Wine was allowed, and in the course of a fortnight the patient had quite recovered.

Third Case.—Illustrating the very simple variety.

Edward B——, aged sixteen years, a healthy, intelligent boy, following the occupation of silkmercer's porter, was admitted June 17th, 1852, into Kenton ward, under the care of Mr. Stanley. None of the above-mentioned patients, nor this boy, remember any irritating substance coming in contact with their lips. Two days before admission this patient noticed a little pustule on the groove of the upper lip, just above the red margin; the part swelled rapidly, and no sleep could be obtained. The pain was not very severe, but great inconvenience was experienced from the œdematous state of the lip and face.

When admitted, these parts were about twice their natural size, hard, red, painful, and brawny. The tongue was *clean;* the pulse 90, but with no power; the skin rather hot, but somewhat moist. Mr. Langdon, Mr. Stanley's house-surgeon, made a transverse incision across the red part of the lip, which yielded about half an ounce of pus, and soon afterwards the surfaces of the wound looked sloughy. A poultice was applied on the lip and face, and with very simple treatment, composed of light purgatives, broth, &c., the boy quickly recovered, and left the hospital five days after his admission.

It will be perceived that these three patients were received into the hospital on the same day; and since that period cases of this kind have been frequently admitted. The fatal issue has, however, been the exception, and recovery the rule. There is now in Darker ward, under the care of Mr. Stanley, a young man, about twenty-four years of age, presenting exactly the same symptoms as have been described of the first of the preceding cases; he is being treated in the same manner, but his recovery is doubtful.

FREE CANCER HOSPITAL.

Large Medullary Cancer of the Superior Maxilla and Malor Bone; Death; Autopsy; Transformation of both Bones into Medullary Substance.

(Under the care of Mr. Weeden Cooke.)

It happens now and then that we trace to several hospitals those unfortunate beings who, affected with malignant disease, seek an operation which the surgeons to whom they apply are constrained to refuse. These poor sufferers thus wander from one institution to the other, until, worn down by irritation and suppuration, they sink under the fearful scourge. We have lately attempted to bring a few cases of this nature under the cognizance of our readers, and beg now permission to adduce another of these, which is especially valuable, as somewhat unusual pathological changes took place in the parts affected. The patient had, moreover, become the subject of much surgical interest, as in one of the hospitals into which he was admitted, opinions differed as to the propriety of an operation.

We can easily understand how painful it must be to some surgeons to withhold from patients so deeply afflicted, the only means of escape, which, to unskilful eyes, seem so simple and appropriate; but the more cancerous diseases become known, the more are surgeons led to perceive, that it is wise, in most instances, not to operate, though it is really distressing to resist the entreaties of the unfortunate patients. The man whose post-mortem examination we are going to describe, had been seen by several surgeons, and had in the last place been admitted into St. Mary's Hospital; here the propriety of resorting to an operation was discussed, and it was decided that no surgical interference would be advisable. He finally placed himself under the care of Mr. Cooke, at the Cancer Hospital, where he died; and we now beg to present a short sketch of the case, and of the post-mortem appearances.

James W——, aged forty-five, was admitted, March 23rd, 1852, under the care of Mr. Weeden Cooke. The patient is a shoe-clicker by trade, of a pallid aspect and leuco-phlegmatic temperament; for the last two or three years he has felt pain in the left side of the face, which he attributed to cold. About four years before admission, two very small pieces of thin transparent bone came away into the mouth from the nose, together with much purulent matter. The discharge soon ceased, and the patient had no further trouble until about nine months before he was seen by Mr. Cooke, when the cheek, over the zygomatic arch, began to swell, and he then applied to a surgeon.

Three months afterwards, an exploratory incision was made, in the expectation of finding caries of the superior maxilla, and about this time a large abscess formed, which was opened, and much thick pus discharged. Poultices were used for a long time after this period, and many surgical examinations took place. A fortnight before admission, the patient went into St. Mary's Hospital, where he had the advantage of the combined opinion of the surgical officers of that institution. Among these there was some difference as to the propriety of attempting the removal of the supposed seat of the disease—namely, the superior maxilla; but it was ultimately decided that no operative procedure was justifiable; these several examinations somewhat inflamed the diseased mass, and produced much pain, to which the patient was not, as a rule, much subject; indeed, there was generally an extraordinary and happy absence of suffering.

Present state.—The tumour now occupies the whole of the left side of the face, from the orbit, which it encroaches upon, to the inferior maxilla, and from the side of the nose to the ear. There are two open wounds with ragged edges, made by a lancet some time ago for evacuating purulent matter; one under the eye, the other at the angle of the jaw. The neighbouring glands are not enlarged. Bowels confined; appetite not good; sleep tolerable; pulse 126, very feeble. The patient has been taking six glasses of wine daily. Mr. Cooke ordered bark, mineral acids and opium, castor-oil occasionally, and carrot poultices.

Fourteenth day.—A large abscess has formed at the angle of the jaws; the patient is very much reduced. The abscess was opened, and two ounces of laudable pus was discharged. Continue the tonic medicines, and use zinc lotion.

On the seventeenth day the abscess at the angle of the jaws was still discharging, and there was fluid above the tissues covering the hard palate on the left side. Upon probing the two openings in the cheek, blood flowed freely; the probe did not reach any bone, but broke through soft textures. Debility increasing. Ordered quinine, iron, and mineral acid.

The patient has been oscillating for the last two months, now better and again worse, and the enlargement of the face has gone on slowly, with occasional bleedings. The palate is more bulged, and the eye more encroached upon; there is not much semi-purulent discharge from the openings in the cheek. The man is much emaciated, and unable to leave his bed; he is sleepless, but not from pain; the appetite is bad. Ordered a soap-and-opium pill each night, with large doses of quinine and ether.

The patient continued to get gradually weaker, and had occasional attacks of hæmorrhage. The whole of the side of the face soon became implicated, the enlargement extending from the temple to the lower jaw, encroaching upon the neck and making the mouth awry, as well as pushing the nasal cartilages to the opposite side.

On July 4th, nine weeks after admission, the patient died, having for a day or two previously suffered from sickness and suffocative obstruction, owing to the discharge of blood down the throat from the back of the tumour. Except during and after the various examinations and probings of the surgeons under whose care he placed himself, the remarkable immunity from pain continued until his death.

Post-mortem examination, twenty-four hours after death.—Body much emaciated; tumour *apparently* decreased, (owing to the blood having receded from it;) it extended from the top of the temporal fossa to beneath the lower jaw, and from the ear to the nose, pushing it and the mouth to the opposite side. An incision being made from the superior to the inferior portion of the tumour, a brain-like mass was exposed, nodulated on its surface, and having in its centre, cavities, containing dark, dirty, puriform semi-fluid matter, one of these opening into the pharynx. The whole of the superior maxillary bone, as well as the malar, were utterly annihilated, save a minute portion of the frontal process of the os malæ, which was, however, nearly detached from the os frontis. The lower portion of the orbit was entirely gone, and the edges of the orbital process of the frontal bone had become ragged from absorption. The palate bone was also destroyed, and most probably the basilar process of the occipital, inasmuch as a scalpel could be easily passed into the brain. The anterior edge of the ramus of the inferior maxilla of the affected side was roughened by absorption, no other part of that bone being involved.

The opposite superior maxilla was intact, and the zygomatic process of the temporal bone unaffected by the disease; the vomer was also healthy. Neither vessels nor nerves could be traced within the encephaloid mass into which these several bones and the surrounding tissues had been converted.

In looking over the history, progress, termination, and post-mortem examination of this case, we remark peculiarities which are very unusual with *bonâ-fide* encephaloid tumours of bone. First, it would appear that a certain amount of caries of the turbinated bones, and suppuration from the lining membrane of the nose and antrum, preceded the development of the tumour. Secondly, we notice a kind of truce of three years between the first lesion of the antrum and the development of the tumour. Thirdly, the almost invariable absence of pain, whilst the latter, with medullary tumours, is sometimes of the most distressing character. Fourthly, the frequent formation of abscess; and lastly, the transformation of the superior maxilla and the malar bone into actual encephaloid substance whilst retaining their normal outline. It is a pity that circumstances would not allow the post-mortem examination to be extended to the viscera, as the appearances there found would very probably have thrown light on the nature of a tumour, which, though almost certainly cancerous, presented characters somewhat different from those which are generally observed.

ST. MARY'S HOSPITAL.

Compound Fracture of the Hand, with Extensive Laceration of the Integuments and Tendons; Recovery without amputation.

(Under the care of Mr. Ure.)

We are always glad to perceive an anxiety in our hospital surgeons to save limbs whenever there is the least chance of doing so without endangering the patient's life. Many such instances come to our knowledge, and we select the following as an apt illustration of the conservative powers of nature. We need, however, hardly say that this practice should not be pursued too eagerly, for it is well known that one successful case of this kind may be the remote cause of the death of other patients, when the analogy is not quite complete. It will, therefore, require all the judgment and acumen of the surgeon to keep him from falling into the opposite extreme of expecting too much from the reparative efforts of nature.

Thomas K——, aged twenty years, was admitted July 8th, 1851, into the accident ward, under the care of Mr. Ure. Whilst attending to a steam-engine, his right hand was caught by the crank, and the dorsum most severely lacerated; the extensor tendons being torn asunder, and the joints of the wrist laid open. The carpal ends of two of the metacarpal bones had been wrenched off; they were found lying loose in the wound, and the laceration extended quite across the hand. At the period of the patient's admission, directly after the accident, the pulse was 108; otherwise, there was little or no constitutional disturbance, which circumstance may be partly accounted for by the fact of the young man being rather weak in intellect, and therefore unconscious of the serious nature of the injury.

The loose fragments of bone were removed, water-dressing applied, and the hand and fore-arm placed on a splint; it being determined, in consequence of the patient's age and previous good health, to save the hand if possible.

For the first few days he went on favourably, with the exception of a slight febrile attack followed by diarrhœa, which readily yielded to the usual remedies. Ten days after admission, small portions of the lacerated tendons sloughed and came away; the discharge became profuse, but the wound was granulating healthily. As he seemed rather low, he was allowed ordinary diet, with half a pint of porter and two ounces of wine per diem. The quantity of wine was progressively increased, an opiate given at bed-time; and although some delirium came on, the pulse continued steadily at 100; the nights were tranquil, and the wound was suppurating in a healthy manner. Early in the morning, however, on the 13th day, the patient became violently delirious, whereupon the wine was left off, and a pint of strong beef-tea substituted. On the 15th day he appeared much depressed, was still at times incoherent, and an ulcer formed over the inner condyle of the humerus, apparently the result of pressure. He was then ordered half an ounce of wine every four hours, which he bore well.

Twenty-second day.—Pus has burrowed up the arm along the inner and back part; the patient seems weak; the pulse is frequent and feeble, and the tongue white. A counter-opening was made through the integuments, a tailed bandage applied to the hand and fore-arm, and the wine increased to four ounces in the day.

Thirtieth day.—He has made favourable progress since the last report: counter-openings have been made from time to time, and sinuses divided, which measures have served to put a stop to the burrowing of the purulent matter up the fore-arm. The sore is dressed with a dilute solution of sulphate of zinc, and has diminished in size. As he seemed rather prostrate, he was ordered six ounces of wine in the day, and a couple of eggs, in addition to the beef-tea.

Forty-first day.—The patient is doing well. The edges of the wound are cicatrizing; his appetite is excellent.

Forty-fourth day.—The ulcer is healing steadily; there is no great secretion of pus, and the hand is somewhat puffy; a small disc of necrosed bone has separated from the internal condyle of the humerus. Ordered five ounces of wine in the day, and half a pint of porter, with ordinary diet.

Four months after admission the patient was discharged from the hospital in good health, with all the sores healed, and able to move the fingers, but with the elbow-joint somewhat stiff, in consequence of its having been kept for so long a time in the same position.

A compound fracture implicating the carpal joints, with extensive laceration of the integuments and tendons, is unquestionably a serious injury, and one in which the propriety of amputation becomes a very nice question. Fortunately, in the present instance, the hand was preserved—a result which the patient owed to his youth, to the soundness of his constitution, and partly, in all probability, as above suggested, to his fatuous state, whereby he was exempted from all mental disquietude as to what had befallen him. In the treatment of a case of this description, much discretion is needful in administering stimulants so as to apportion the quantity, and maintaining power without over-exciting the naturally feeble sensorium of the patient. Too much stress cannot be laid on the importance of giving free egress to pus whenever it accumulates after injuries of this kind, by the aid of counter-openings and the division of sinuses. The recovery is thus accelerated, the undermining and spoiling of fascial and other structures prevented, and the contingent risk of danger from purulent infection prevented.

ST. THOMAS'S HOSPITAL.

Melanotic Tumour growing from the Heel; Amputation of the Leg.

(Under the care of Mr. Le Gros Clark.)

There are certain portions of the body more prone to become the seat of melanotic tumours than others: the eye and some of the viscera being the localities most frequently attacked. Melanosis has also been observed upon the trunk and upper extremities; but the heel is rather an unusual locality for this kind of malignant growth. A very striking case, in which the tumour was so situated, was lately treated by Mr. Clark; it is well worthy of being placed upon record, both as regards the pathological alteration itself, and the operative measures which were had recourse to.

Philip W——, an agriculturist, seventy-one years of age, was admitted into Naples ward, June 24, 1852, under the care of Mr. Clark, with a melanotic tumour growing from the left heel. Neither the patient's parents nor any member of his family have ever suffered from malignant disease; his father died at the age of eighty-four, and his mother at eighty. The man himself has always enjoyed excellent health up to the time when the ulceration of his heel began to give him uneasiness.

Seven years before admission a vesicle formed upon the latter, on the left side, from some irritation and pressure of the shoe; he opened the vesicle with a needle, and gave exit to a little serum mixed with blood. A small ulcer, the size of a shilling, now gradually formed, and interfered to some extent with his comfort as to walking and common field labour. This state of things continued for four years, when the patient was obliged to give up work, and applied to a surgeon. The ulcerated spot was then about the size of a five-shilling piece. The principal application used was sulphate of copper; but the part soon began to throw out a fungus, and the patient now experienced much pain in the heel. The tumour progressed very slowly for about three years; but for the last three weeks before admission it grew very rapidly. and Mr. Clark, who had been consulted in the country concerning the case, advised the patient's removal to town.

On admission, the outer portion of the left heel was found covered with a globular, fungoid mass, of a dark colour, nodulated, discharging a considerable quantity of pus, and of the size of the clenched fist. The tumour seemed principally connected with the skin, was somewhat moveable, and did not appear to have any direct communication with the os calcis. The patient complains of sharp, lancinating pains in the tumour, but his health has not materially suffered, in spite of the protracted suffering which he has experienced.

As it was evident that this tumour was of a malignant kind, Mr. Clark resolved to take off the leg, rather than subject a man of so advanced an age to a recurrence of the disease in the cicatrix. The operation was performed on the 3rd of July, 1852, the patient being under the influence of chloroform.

The tumour was carefully examined by Dr. Bristowe, demonstrator of morbid anatomy to the hospital, and we have much pleasure in subjoining the results of this investigation:—

The tumour was seated on the outer ankle, and encroached somewhat on the sole of the foot; it was sessile and mushroom-like—that is, the tumour itself was broader than its base, the diameter of the former being about three inches, that of the latter about two: its surface was divided by deep fissures into lobes, and these again were more or less perfectly divided into lobules; generally it was of a deep brown-black colour, but some of the lobules were pearly white, and even where blackest the surface was divided into irregular islets by bands of a similar white hue. Many of the lobules were covered by a kind of cap of epidermis, which in most instances was completely isolated from the epidermis of the healthy skin. This was easily separated, and found to grow on, and to be adapted to, overgrown papillæ of a pearly-white colour; some of them were half an inch in length. The epidermis of the skin surrounding the tumour was quite healthy, and was prolonged to a variable distance into the tumour.

On section the tumour was found to be confined entirely to the skin; it did not seem to extend at all below the level of the surrounding healthy integuments; it was about an inch thick, and for the most part of a deep black colour. It presented, however, numerous white streaks of various thickness, radiating from the narrow base to the circumference; at the base they were connected with processes of subcutaneous cellular tissue and fat, which encroached slightly on the tumour. Towards the circumference, in many instances, they spread out in a fan-like manner, either to form entire white lobules, or to be connected with a thin layer of white tissue on the surface of some of the melanotic lobules, or to unite with the papillæ, which were covered by epidermis. It seems clear that the tumour was entirely cutaneous; that the papillæ became overgrown, retaining for a time their ordinary characters, (though on an enlarged scale;) that at length they lost the power of forming epidermis, and at the same time their papillary structure. The latter became converted into lobules, which in their texture and colour retained for a time traces of their origin, but were ultimately wholly involved in the melanotic disease.

Microscopic characters.—The epidermis, wherever it was seen, presented the normal characters of epidermis. The papillæ varied in size from a little above healthy papillæ to half an inch in length, the latter being hisped with secondary papillæ. They were all covered by basement membrane, were remarkably delicate and transparent, consisting of loosely-arranged fibres, or rather, small fusiform, more or less distinctly nucleated cells, and each presented a distinct capillary loop. The remaining white structure, whether on the surface or in the substance of the tumour, presented nearly the same characters. It was permeated by numerous and distinct vessels; the fibres appeared more densely arranged, but, *equally* with those before mentioned, consisted of nucleated, fusiform cells. The cells, however, were of larger size, and there were many round; or oval, or irregularly-shaped ones present: some contained more than one nucleus, and the latter was often nucleolated; but neither the nucleus nor nucleolus had that definite size and shape so often found in cancerous growths.

The parts that were actually black presented very little distinct structure. A large quantity of amorphous granular, sepia-coloured matter was present, either scattered irregularly, or collected into little black masses; but where it was small in quantity, or partly washed away, cells similar to those in the white substance were observed. The relationship of the granules to the cells could not be determined.

The patient has done extremely well since the operation; the stump is almost healed; and by means of good diet and wine, the debilitating effects of suppuration and confinement at an advanced age, are successfully combated.

As this tumour seems to have sprung principally from the skin, it might perhaps be looked upon as an epithelial cancer which had gradually passed into the melanotic variety—a change which is by Mr. Paget supposed to occur in most melanotic growths. It is not a little surprising that cancer, now generally looked upon as a blood disease, should, after sixty-six years of a healthy country life, (the patient is seventy-one years old, and was first attacked four years ago,) spring up in a subject free from any hereditary taint. One would almost be inclined to think, when reflecting on a case of this kind, that some local changes had taken place in an originally simple ulcer, owing to the declining vitality and vigour of the individual; or it might be supposed that the cancerous deterioration of the blood was beginning when the "apt locality" was afforded by the ulcer on the heel.

However this may be, there is perhaps some truth in the supposition that the black degeneration is more likely to take place with patients of very fair hair and complexion, as it is known to occur in grey and white horses.

PECKHAM HOUSE ASYLUM.

[EXTRACT FROM THE "CASE-BOOK"]

(*Communicated by* HENRY ARMSTRONG, M.D., M.R.C.S., Eng.)

JAMES R——, aged twenty-three years; single; hairdresser; one month insane; second attack; admitted November 4th, 1848. Is of middle height; somewhat full habit of body; countenance much confused; hair brown; eyes grey; pupils regular; head large, but not peculiar in form. Bodily, he is stout; pulse 80, full; bowels costive; tongue furred. Mentally, much lost; when spoken to, makes a chattering noise, but giving utterance to nothing intelligible.

In Jan. 1849, had a slight attack of small-pox, of which he quickly got better. Up to the end of last year he varied but little either mentally or bodily; if anything, the mind became a little improved, but only for short periods together; he would again relapse. He would, however, always answer questions when put to him, and frequently was heard to say he wished to die. At times he was found to be in the habit of picking up gravel and pebbles and putting them into his mouth.

Dec. 23, 1851.—This day he told the attendant that he had swallowed the handles of two tinned-iron spoons, and gave up the bowls corresponding. When handled, the stomach was felt weighty and distended to the length of five or six inches below the false ribs on the left side, and upon deep pressure a sense of friction of foreign bodies was elicited. There was a body to be felt about the size of the ball of the thumb, and about four inches long, lying (apparently in the stomach) vertically to the left of the umbilicus from the margin of the hypochondrium downwards. He complains of no pain at all, nor of the handling, but says he often has pain "like cutting his heart out," says there is a "weight there (placing his hand on the epigastrium,) which presses on his lights and intestines." He was placed in bed in the infirmary, and ordered rice diet and slops. When further examined in bed, it was found that the distended stomach was prominent on the left side just above the crista ilii, and by change of posture of the patient was successively found at a corresponding point on the opposite side, and resting above the pubis. It is obvious, through the relaxed wall of the belly, that there is a large collection of angular bodies (pebbles,) besides other longer bodies which can be poised lengthwise between opposing fingers. His stools are of green-grey colour, (stained by iron,) are consistent and lumpy; on percussion, the liver and spleen appear of average size only, and nothing abnormal is felt in the belly except this distended stomach. Tongue clean and moist; pulse about 75 to 80, rather soft. In conversation repeatedly on the subject, he persists that he swallowed the two spoon-handles on the 23rd inst.; that he has repeatedly done so, the first time he did it being on Nov. 1st; and varies in saying that he had altogether swallowed twelve, and (at another time) twenty-seven similar spoon-handles.

Also, that he has formerly swallowed sand and pebbles as long as two years since, and has done so as lately as from two to three months back, (he gives these dates by reference to concurrent circumstances;) and that he did it to effect suicide because he was detained here.

28th.—He had repeatedly an ounce of castor-oil, which has kept the bowels open twice or three times daily. Stools dark greenish-grey or black, costive, breaking down very easily on pressure; has had fluid food; pulse not disturbed, and tongue clean, (not raw nor red;) urine natural; appetite but small.

31st.—To-day, some complaint of pain and tenderness in the belly; some sense of fulness. The stools as before, but covered with a yellowish creamy substance, which floated strongly in flocculent flakes in the urine found in the close stools. At first, the substance was conceived to be pus, but examined microscopically, showed to be composed entirely of fat or oil, with crystals of triple phosphate, animal striped muscle, and vegetable hairs and epidermis, besides yellowish granular matter.

Jan. 3d, 1852.—This morning vomited his breakfast, consisting of tea and bread-and-butter, which was returned of an inky colour, but after standing some hours, became of much browner colour (from oxidation of protoxide of iron?) complains of no pain in stomach. Last night slept well, and this morning appeared as well as usual, but immediately after rising became sick and vomited.

5th.—Yesterday, bowels shut up, and some sickness in the morning; no complaint of pain; pulse 90; tongue clean. Had an ordinary black-draught to-day. Bowels but scantily open.

7th.—Yesterday, vomited after breakfast, but not to-day. Appears weak and low. Was yesterday put upon a mixture containing tincture of columba and tincture of orange-peel, with an ounce of sherry twice a day.

9th.—Much about the same; no vomiting for three days past; tongue slightly furred, of a whitish colour; bowels need aperients every day or two. He takes castor-oil with the best effect. Pulse about 90; rather weak and sharp; no tenderness of belly; the stools constantly watched up to this date; no stones have passed; they are still stained blackish.

20th.—Has continued much about the same, some days refusing his food, in the morning having nausea and vomiting. Bowels act slightly; still the stools are of the same colour. Has a mixture of decoction of aloes and columba, with orange-peel tincture and changes of diet, so as to please his fancy as much as possible. Although very thin, is perhaps a little plumper than he was. Tongue always not at all affected; pulse 90 to 100; no evening accession of fever now.

Feb. 2nd.—No change; apparently no stouter. The foreign bodies in the stomach are still felt as distinctly, and in the same way as before. Now and then he vomits a meal; pulse still ranges from 100 to 110; mentally much about the zame. Continued medicine.

March 5th.—No change mentally; bodily, perhaps, a little stouter than he was; appetite good; stools still ferruginous, otherwise the same.

23rd.—Half-past one P.M.; up to this period he continued much as at the last notice; if anything, he had gained flesh, and his general appearance had improved; his appetite was good; he slept well, and complained of no pain or inconvenience in the belly. This afternoon, however, about half-past one o'clock, while sitting out of doors in the airing-ground, he was suddenly seized with severe pain in the abdomen, which bent him double, and caused him to fall to the ground. He was at once put to bed in the infirmary, when he began to vomit, upon which a sedative draught was given. In the course of the afternoon, he complained of occasional "spasms and colic" (as he termed it,) and vomited a little two or three times; the belly, however, was by no means tender to the touch on moderate pressure. He lay chiefly on the left side, and was unwilling to be disturbed in any way. In the evening, about six P.M., the symptoms became worse, and he now complained greatly of pain in the belly, but chiefly in the left hypochondriac region. His countenance became anxious, and imbued with cold perspiration; the pulse very small and rapid, about 140; the pain in the belly, on pressure, or on being moved, very severe. Eighteen leeches were now applied to the abdomen, followed by warm poultices, and two grains of calomel, with a quarter of a grain of opium, were given every two hours. During the night he became gradually worse, complaining of intense pain in the belly, and feeling as if he were on fire, moaning frequently, and calling out for water.

At seven o'clock this morning (the 24th,) he was found to be fast sinking, and at a quarter before nine he expired.

Post-mortem examination seventy-eight hours after death.—The general appearance of the countenance was calm and placid; the body somewhat thin and spare. Over the entire surface of the abdomen there was considerable dullness on percussion, (but this in a much more marked degree in the left hypochondrium,) extending to within an inch and a half of the left crista ilii, and about two inches in width. Caput: Upon removing the calvarium, considerable opacity of the membranes of the brain was observed, but this more especially upon the superior surface of the two hemispheres; the brain itself, throughout its entire structure was apparently healthy; the ventricles contained but the usual quantity of fluid. Thorax: On removing the sternum and cartilages of ribs, a patch of recently effused lymph of the size of a crown-piece was seen lying on the anterior convex surface of the right lung, about its middle; posteriorly, this lung was slightly adherent at its superior part: the structure of both lungs was quite healthy; the heart, if anything, was a little larger than usual, but healthy as to its structures. Abdomen: On removing the abdominal parietes, the cavity was observed to be filled with a dark greenish-grey fluid; with which a considerable amount of recently effused lymph was intermixed. The whole peritonæal surface was injected, of a deep rose colour. The stomach was seen lying in the left hypochondriac region considerably more vertical than usual, and apparently much contracted, and, together with the whole mass of intestine. with the omentum, considerably engorged with blood. Upon pressing on the stomach, a hard mass, about five inches long and two wide, was felt lying in its axis, and some fluid of a dark greenish-grey colour was seen issuing from an orifice on the anterior surface of the duodenum, about an inch and a half from the pylorus, of a size to admit a swan quill, oval in shape, with sharp-cut edges. On feeling the duodenum, a body about five inches long, of the thickness of a quill at one end, and flattened out at the other, with the latter towards the pyloric orifice of the stomach, could be distinguished. The stomach and duodenum were now removed, double ligatures having been put on, and the space between them divided. An incision was now made along the lesser curvature of the stomach, when a quantity of fluid resembling that seen on opening the abdomen, and of a peculiar colour, poured out. A mass of handles of tinned-iron spoons, together with nails and other articles, were now seen closely packed together, the spoon handles, for the greater part, lying with their flattened extremities towards the cardiac end of the stomach. On removing them, there were found to be thirty-one entire spoon-handles, of about five inches long; two half handles, (flattened ends;) two half, (thin ends;) nine nails, varying in size from a garden wall nail to a spike nail; rather better than half of the iron heel of a shoe: one screw of two and a quarter inches long; four pebbles the size of a hazel nut; and one metal button; the weight of which conjointly amounted to two pounds eight ounces. The whole of them, when first removed, were stained of a black colour, but on exposure to the air became quickly further oxidized. Many of the handles had become much thinner, and some acted on only in parts; others apparently unchanged, except as to colour; a number of them show the fibrous texture of the iron, and have the angles at their extremities, rounded off, or somewhat blunted. On opening the duodenum, an entire spoon-handle was seen in its axis, with its flattened extremity towards the pyloric end, and opposite the perforation above mentioned. The coats of the stomach were considerably thickened, and the mucous membrane presented a very hypertrophied and rugous appearance, and stained all over of a dark greenish-grey colour; the duodenum towards its termination presented an appearance closely allied to that of the stomach, though not in so marked a degree, its surface being also tinged of the same colour, and its coats thickened. The whole of the coats of the small intestine throughout its course were somewhat thickened and injected, more especially the mucous; and, scattered over its whole surface, in some places more thickly than in others, numerous papillæ were noticed, varying in size from a mustard-seed to that of a tare. The perforation in the duodenum was somewhat thickened as to its margins (internally,) and not so sharp as the margins of it externally. Peyer's glands were apparently not to be met with. In the large intestine the solitary glands were unusually large and distinct. The entire lining membrane of the intestine was stained of the same olour as that of the stomach. All the other organs n the body were found healthy.

MIDDLESEX HOSPITAL.

Two Cases of Scirrhous Cancer of the Breast of twelve years' standing; former ablation of the organ in the first case; non-interference in the second.

(Under the care of Mr. Shaw.)

There are now in the female cancer ward of this hospital two cases of ulcerated scirrhus of the breast, which offer contrasts and analogies of a very curious kind; we are confident that these histories will prove highly interesting, and throw some light on the difficult question of surgical interference in cancer of the breast. Those who see many cases of scirrhus of the mamma are fully aware how seldom it is possible to make the rules laid down in books available in actual cases.

We are told to operate early, or abstain from using the knife when the disease is of some standing, the skin adherent, and the lymphatic glands involved. But patients will present themselves with slightly adherent skin, the glands merely irritated and enlarged by the disease, and the health, though the tumour be of some standing, unimpaired. How is the surgeon then to act? Another case will exhibit the scirrhus in an ulcerated state, the patient suffering much pain, and being worn out by the irritation. Can we refuse the sufferer the chance of a few months or even years of comparative ease? And may we not take into consideration that recurrence of the affection in some of the viscera leads to the fatal issue in a less harrowing and distressing manner? Other patients are met with, who, according to rule, should be treated by palliatives only; but the ulceration is so distressing and fœtid, the poor creatures are so thoroughly shut out from the society of their fellow-beings, that we can hardly resist their earnest entreaties for a relief which they know to be but temporary.

Examples might be multiplied to show that it is unfair to condemn a surgeon whose patient meets with a recurrence; and we must say that we are very much inclined to believe that a re-appearance of the disease is almost certain, and that the difference, after all, lies chiefly in the more or less time which elapses between the operation and the recurrence, either externally or internally, of the cancerous manifestations. (These views apply principally to scirrhus of the breast; for encephaloid cancer is so fearfully rapid, that patients generally apply at too late a period.)

It is, on the other hand, likewise true that the surgeon sometimes shows the soundness of his judgment by refraining from an operation, as it is to be feared, in certain constitutions, that the activity excited in the part by the use of the knife may cause the cancerous phenomena to succeed each other with more rapidity than would have occurred had no operation been performed. But such cases may almost be looked upon as exceptions; the re-appearance of the disease is usually a slow process; but though slow, it is no less sure; for cancer is, according to all probability, a blood disease, and, as such, will become developed again and again whenever an "apt locality" offers.

The two cases which we desire to put upon record exemplify this proposition—viz., that the progress of scirrhous cancer in the breast may be equally slow both with and without an operation.

Case 1.—Ann T——, aged sixty-six years, was admitted into the female cancer ward, Jan. 16, 1852, under the care of Mr. Shaw. The patient is married, and has had three children, who are all at present living; no sign of malignant disease has ever been noticed as regards her parents, and she has a sister who is enjoying good health.

It appears that, about twelve years before admission, and shortly after the catamenia had ceased, the woman's right breast was struck with a basket, the same organ having shortly before experienced a slight injury of the same kind. A tumour soon formed in that breast, which tumour in a short time attained the size of a hen's egg. The patient then sought relief in St. Bartholomew's Hospital, where she was placed under Mr. Lawrence's care. It should be noticed that the woman had a milk abscess in the left breast at the birth of her last child, when she was forty-three years of age; this had left some induration, which subsequently became entirely absorbed. She therefore hoped the *right* breast might get well in the same way.

It was considered by Mr. Lawrence that the disease was in a sufficiently early stage to warrant an operation. This was proposed to the patient, but she was unable to overcome her nervousness and timidity, and did not submit.

She left St. Bartholomew's Hospital soon afterwards, and the tumour continued to grow very slowly for the following nine years, without causing an intolerable amount of pain. At the expiration of that period, ulceration took place, and after that process had continued for two years and a half, the woman returned to St. Bartholomew's hospital. It was now found that the disease had involved the whole of the breast, the tumour had assumed a high degree of induration, ulcers had formed in several parts, the axillary glands were enlarged, and it was deemed prudent not to attempt an operation. The patient subsequently applied to this hospital, and was admitted as above stated.

On examination the skin was found drawn in by the indurated mass in various places, this circumstance giving rise to some deep furrows, running transversely; the ulcerating process was going forward on several points, the discharge being very copious, and the patient suffering a great deal of pain. It was evident that no operative means could be thought of in a case of such long standing: the treatment was therefore directed to the relief of the pain, and to the keeping up of the general health. The usual sedatives and tonics have succeeded to a remarkable degree in accomplishing this end, for the progress of the disease is extremely slow, and no signs of cachexia have appeared. The patient has now been six months in the hospital; her appetite is good, she sleeps tolerably well, and her pulse is 72, with moderate force and great regularity. In fact, it may be said that the disease has been kept in complete abeyance, and that the system has suffered very slightly from the existence of the cancerous diathesis, or from the manifestations of the disease in the breast.

This case might certainly go far to make us look upon the expectant method as the most advisable in cancer of the breast; but there is in the next bed a patient similarly affected, and with whom, *though originally operated upon*, the disease has progressed at an equally slow pace, and the whole system has also remained unaffected by the malady. The main facts of this second case are these:—

Sarah H——, aged fifty years, unmarried, was admitted January 14th, 1851, under the care of Mr. Shaw. No signs of malignant disease have been known to exist in her family, and the patient's health had always been pretty good, when about twelve years ago a scirrhous tumour began to develop in the left breast. There was no discoloration of skin, the growth was small but very hard, and only of a few months' standing. Mr. Coulson, who had been consulted on the case, removed the breast, and the wound cicatrized almost completely. One spot, however, about the size of a pin's head, did not close, and remained stationary for about a twelvemonth; it then assumed more activity, and began to ulcerate. Various points of the cicatrix were successively attacked by low inflammation and slight ulceration, these changes stretching over no less than ten years, the disease remaining all this time almost stationary.

The patient has now been eighteen months in this hospital, and the ulceration has not assumed a more rapid character, no destructive process has been set up, and the general health has, to a certain extent, remained unaffected. The principal symptom has been an extension of the induration towards the sternum and axilla, but the woman's looks are far from being cachectic; she sleeps pretty well, her appetite is satisfactory, and the pulse (72) is as regular and steady as in the first case.

In comparing these two cases, we find that the first patient has been a mother, whilst the second has never been married; in the first, the disease appeared at fifty-four years, in the second at thirty-eight; the first underwent no operation, the second had the breast taken off; and yet the progress in both has been somewhat similar. There is, however, a difference between the present state of the parts in these two patients, for the first, who did not submit to an operation, presents a much more extensively ulcerated and indurated surface than the second; but both are equally unaffected with cachexia, and their systems seem to contend successfully with the evil influence both of the contaminated blood and of the local disorder. It is clear that the operation in the second case did not actually exasperate the disease, and that the present state of the patient is probably more favourable than if the scirrhous tumour had been allowed to soften, ulcerate, and become disintegrated, without the interference of the knife. Nor can it be said with certainty that the first patient would have been made worse by an operation, though the disease might possibly have been rendered more active by operative measures. It remains, however, clear, that cancer of the breast, whether we interfere or not, will run a certain course, which is more or less rapid, according to the original constitution of the patient, and the means employed for maintaining the due performance of the various functions of the economy.

We would finally remark that the cancer ward of this hospital offers very striking examples of the peculiar cachectic countenance induced by scirrhus of the *womb*; the leaden hue of these patients contrasts very strongly with the comparatively healthy look of those who suffer from cancer of the breast. The system seems to sympathize earlier and more deeply with the former than with the latter.

ST. GEORGE'S HOSPITAL.

Disease of the Hip-joint of several years' standing; Death; Examination of the joint.

(Under the care of Mr. Keate.)

Much difference of opinion still exists as to the propriety of removing the head of the femur in certain stages of hip-disease; we are therefore anxious to put upon record facts which may aid in the elucidation of the question. Post-mortem examinations, in cases where no operation has been performed, are certainly of some value; with this view we adduce the following case, derived from the notes of Mr. Holmes, surgical registrar to the hospital.

Sarah W——, aged six years, was admitted April 21, 1852, under the care of Mr. Keate. This child had been ill, it appeared, for the last two years, her symptoms being referred to the left hip. She had been under treatment at another hospital, and had derived great temporary benefit from the means adopted. On examination, a large abscess was detected at the upper part of the left thigh; the pelvis was much twisted, and the left knee pointed across the opposite side; any attempt to straighten it gave her pain, but she did not suffer much otherwise. Her manner was drowsy and listless.

Two days after admission a small opening was made into the abscess, and a considerable quantity of pus evacuated; the discharge continued, and the deformity increased for the next fortnight; and as she seemed to be getting weaker, she was given bark and ammonia, with good diet and porter. It was proposed to put her on a double inclined plane, but the pain induced by the attempts to alter her position caused this to be deferred. On the 12th of May, twenty-one days after admission, it was noticed that her drowsiness was increasing, so much so that it was difficult to rouse her, and her strength appeared to be failing. In spite of an abundance of stimulants, she died May 16, twenty-five days after admission.

Post-mortem Examination.—The shortening was only *apparent*, for the measurement proved the length to be the same on both sides. In the brain, the lateral ventricles were much distended by serum; the kidneys were healthy, and the diseased joint presented the following appearances:—Head and neck of the femur extensively carious, and articular cartilages almost gone; the head of the bone was not dislocated, and the ligaments of the joint remained entire. The neck of the femur was extensively diseased, and two or three large portions of bone were lying loose upon the carious mass. The acetabulum was likewise in a carious state, especially towards its anterior and lower portions, about half the thickness of the bone being there eaten away. In other parts, remains of the cavity were still apparent. There was no trace of disease on the pelvic surface of the os innominatum; the sinuses in the neighborhood of the bone were much thickened, but no collection of matter remained.

Mr. William Adams, demonstrator of morbid anatomy at St. Thomas's Hospital, examined, a few days ago, the body of a little girl, about seven years of age, in the last stage of emaciation and marasmus from hip disease, which had lasted several years. The greater portion of the head of the bone was absorbed, the cartilage at the epiphysis, between the head and neck, becoming visible by a longitudinal section. The remains of the head were studded with irregular calcareous deposit, and the great trochanter was carious. The cotyloid cavity was quite disorganized, the bony plate forming its fundus quite destroyed, and pus extended into the pelvic cavity, from which it had been discharged by a fistulous aperture in front of the joint.

It may be surmised, from these two post-mortem examinations, that if the removal of the head of the bone be attempted at all, it must be done early; for it would appear that the cotyloid cavity becomes, with time, involved in the mischief. It is, on the other hand, possible that the disorganizing process may be carried on simultaneously both in the head and acetabulum.

Reviews and Notices of Books.

Disease in Childhood; its Common Causes, and Directions for its Practical Management. By Robert Ellis, F.L.S., Surgeon to the National Society's Training Institution for Schoolmistresses, &c. Fcap 8vo, pp. 286. London: Cox. 1852.

We regret that we cannot recommend our readers to follow our example, and do for their pleasure or instruction that which we have been obliged to do as a matter of duty—peruse Mr. Ellis's book. We should be sorry to appear too severe upon this gentleman, but we feel sorely tempted to say that we have found little more of novelty and value in his work than there was of sense in Gratiano's discourse:—"His reasons are as two grains of wheat hid in two bushels of chaff; you shall seek all day ere you find them, and when you have them, they are not worth the search." In fact, we are quite at a loss to discover any plausible reason or excuse for his rushing into print, unless, indeed, he wished to praise Dr. West, write a dedication to the Chairman of the Committee of the Hospital for Sick Children, or inform the public that "the whole aspect of childhood has always presented itself to the writer as one of peculiar medical interest, and he has enjoyed extensive opportunities of observing it in sickness and in time of health."—(*Preface.*)

Mr. Ellis, although he does not say so, has evidently taken the plan of his work from the well-known treatise of Dr. Combe on "The Management of Infancy," which has long been highly and justly appreciated, both by the profession and the public, at home and abroad. We also find much the same description of matter in the introductory chapters of Maunsell and Evanson's book, not to mention a host of "Advices to Mothers." From the present production, and our recollections of the latter class, it would appear a very difficult task to compile a treatise capable of conveying sound information to the public, without the introduction of cant, humbug, or an appearance of advertising. Dr. Combe stands pre-eminent as one who has avoided these rocks of bad taste; as far as we can remember, too, he has not endeavored to attain the impossibility of teaching his non-professional readers the art of prescribing; he has not left room for the abuse of drugs, by recommending, as Mr. Ellis does, "a little alterative and aperient medicine, or a dose of castor-oil, or of rhubarb with a little soda, and the alterative powder before mentioned, consisting of three grains of rhubarb and of soda, one or two of grey powder (mercury-with-chalk,) and one of ipecacuanha powder;" neither has he attempted to give his readers some idea of the treatment of minor ailments generally, including aphtha, jaundice, diarrhœa, certain skin diseases, &c. Our own experience has long since taught us that the domestic medicine-chest is a domestic curse; and we are convinced our readers will agree with us, that not only is positive harm often done by the agents employed, but in almost all cases the most valuable time is lost—that time during which the disease is amenable to judicious and well-directed treatment. Infantile disorders may be not inaptly compared to the diseases of tropical climates, in regard to their fatality and the rapidity with which they run their course. Even Mr. Ellis allows that the domestic practice of physic is not invariably attended with a good result, although the original disease be cured, for he tells his readers that "the retrocession of a simple skin eruption may be followed by fatal mischief within the skull." We are reminded of poor Mrs. Squeers's injury, as detailed in the well-known epistle of her daughter to Ralph Nickleby:—"When your nevew that you recommended for a teacher had done this to my pa, and jumped upon his body with his feet, and also langwedge which I will not pollewt my pen with describing, he assaulted my ma with dreadful violence, dashed her to the earth, and drove her back comb several inches into her head. A very little more and it must have entered her skull. We have a medical certifiket that if it had, the tortershell would have affected the brain."

The principal subjects discussed by Mr. Ellis are, the mortality of young persons under fifteen, and its causes; with the predisposing causes of disease; the healthy management of the infant; the physical training of childhood; the minor ailments, as well as the more serious illnesses of children; and the management of the child's sick chamber. As a favourable specimen of his style, we may quote his remarks on the treatment of malignant scarlatina:—

> "Immediately on recognizing the symptoms above described, it will be necessary to put the child at once to bed, and to isolate him from those members of the family who have not as yet had the disease. The same general arrangements of the room are necessary as directed for small-pox. In both instances the apartment must be kept darkened, cool, and entirely ventilated. The food must be liquid and very light, and the drink cold sugared water, slightly flavoured with lemon, or plain cold barley-water if the bowels are disordered. An attentive parent or nurse may give the most grateful relief to the fiery heat of the skin of the suffering child, by repeatedly sponging the face and hands with *cold water*, and the whole surface may be soothed, and the child made very comfortable, by bathing it with tepid water. During the heat of the eruption there need no fear be entertained as to the result of this practice, and some have even advised entire cold affusion. To this, however, I feel disposed to give a very reluctant assent, and deem it much safer, and equally acceptable to the child, to employ tepid instead of cold water for this purpose. Tepid affusion has this important advantage; it does not excite reaction, which the application of cold is apt to do, the heat becoming more intolerable than before. When the disease attacks the throat, or when it takes on a malignant character, much attention in the due administration of remedies, and of stimulant and nourishing substances, will be necessary."—p. 229.

We can hardly imagine that any of our lay readers, if we may so call them, will be tempted to undertake the treatment of a case of scarlatina upon the strength of the information contained in the preceding paragraph; but we would fain warn them in time not to make the attempt; and we cannot do better, in conclusion, than impress upon them briefly *our* advice on the management of the diseases of childhood. At the commencement of every illness, send for your medical practitioner—in these days of hospital, dispensary, and union surgeons, the poorest amongst you has a medical attendant; and take care not only that the medicines he prescribes are administered, but that his directions regarding the temperature of the sick room, the diet and clothing of the little patient, with his general management, are rigidly attended to. Never forget that drugs are edged tools, on all occasions requiring great skill and dexterity in their use. Risk not, therefore, your own peace of mind, by "doctoring and killing" your children, or by "letting them die." When, therefore, your children are ill, consign them to the care and judgment of regular medical practitioners.

On the Diseases of the Kidney, their Pathology, Diagnosis, and Treatment; with an Introductory Chapter on the Anatomy and Physiology of the Kidney. By George Johnson, M.D., Assistant-Physician to King's College Hospital, &c. 8vo. pp. 517. London: Parker. 1852.

A quarter of a century has just elapsed since that eminent pathologist and physician, whose name is known and respected wherever the medical sciences are cultivated, first pointed out the connexion existing between certain forms of dropsy attended with the secretion of albuminous urine, and disease of the kidneys. The clear and lucid description given by Dr. Bright of the several forms or varieties of diseased renal structure giving rise to albuminuria and dropsy has excited lasting admiration; and this admiration will not be diminished, when we remember that the minute anatomy and physiology of these glands were, at the time he wrote, imperfectly understood; that the microscope as an instrument for scientific investigation, was comparatively unemployed; and that pathological science was then almost in its infancy.

In 1842, a valuable addition was made to our knowledge of the structure of the renal glands, by the publication, in the *Philosophical Transactions*, of a paper, by Mr. Bowman, "On the Structure and Use of the Malpighian Bodies of the Kidney," the facts detailed in which have since been almost all confirmed by other physiologists; indeed, so accurate were Mr. Bowman's observations, and his deductions therefrom, that they have received scarcely any modifiation to the present day; and they may be regarded as having in a great measure laid the foundation for our present knowledge of kidney diseases—a correct appreciation of healthy structure and functions being the only firm foundation for pathological research.

Within the last few years, renal diseases have attracted much attention, especially from Gluge, Vogel, Henle, Canstatt, Frerichs, and others, in Germany, and from Christison, Busk, John Simon, Johnson, Owen Rees, Gairdner, and others, in this country. The author of the present work published, in the *Transactions* of the Medico-Chirurgical Society, (vols. xxix. and xxx.,) two papers—one "On the Minute Anatomy and Pathology of Bright's Disease of the Kidney;" the other "On the Inflammatory Diseases of the Kidney"—papers which excited much attention, on account of their general importance and interest, and of the novel views put forth in them. Since the appearance of these contributions, in 1846–47, Dr. Johnson has been engaged in the further investigation of the diseases of these organs, and the result of his labours is now before us, in a volume which we have no hesitation in characterizing as a most important addition to medical science.

The work commences with a chapter on the Anatomy and Physiology of the Healthy Kidney, which, though essential to the completeness of the book, contains little beyond what has already been published by the author and others. It is perhaps deserving of notice, that late writers on the structure of these organs are undecided as to whether the tubules of the kidney are imbedded in a fibro-cellular matrix or not,—Bowman, Goodsir, and Johnson affirming that they are—an opinion with which we entirely coincide; while Frerichs states,[*] "Of a fibro-cellular matrix, in which, according to Goodsir and Johnson, the tubuli uriniferi and the vesels are imbedded, I have been unable to convince myself." Again, an important question has been mooted, as to the presence of a small quantity of fat in the epithelial cells of the healthy kidney, Johnson and Frerichs agreeing that such is always present, whilst Gairdner accurately maintains the opposite opinion, that there is no trace of oil in the cells, except in cases of disease.

Chapter II. is devoted to the consideration of the causes of renal disease, not including, however, local or mechanical causes, or the origin of cancerous diseases of the kidneys. Putting these cases aside, it will be found "that all the causes of renal disease have this common feature—that *they tend to produce a morbid condition of the blood*, either by introducing some poison from without, or by interfering with the elimination of certain noxious matters developed within the body; by so far reducing the quantity of nutritive food, that it is insufficient for supplying the waste of the tissues, and for enabling the blood to maintain its healthy composition; or, lastly, by some exhausting and depressing agency, which lowers the vital energy and diminishes the power which the healthy body possesses, of resisting and overcoming injurious influences, whether originating within or without."

In noticing the particular causes, the author lays the greatest stress upon the exposure of the body to wet and cold—upon disease of the heart and lungs (sometimes also a consequence of kidney disease) upon the effects of the fever poisons, especially the poison of scarlatina, erysipelas, &c.—upon the intemperate use of alcoholic drinks—and upon the poison of gout. The influence of unhealthy occupations, and of the scrofulous diathesis, is also considered.

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[*] Die Bright'sche Nierenkrankheit und Deren Behandlung. Eine Monographie, von Dr. F. T. Frerichs, &c.

In Chapter III. we find a description of the most frequent of acute renal diseases, for which Dr. Johnson has proposed the name of "acute desquamative nephritis," selecting as a type of this affection that form which is ordinarily associated with the dropsy of scarlatina. To the designation chosen by the author for this disease, objection has been with some force made. It is said that with equal propriety the term "desquamative glossitis" might be applied to the "strawberry tongue" of scarlatina, from which the epithelium has peeled off. The symptoms and general history of the disease are so well known, and have been already so fully described by Dr. Miller's admirable papers, published in this journal, that we may pass to Dr. Johnson's description of the condition of the urine and kidneys. At first the urine is scanty, occasionally almost or quite suppressed, of a dark colour from admixture with blood, of the ordinary specific gravity, and loaded with albumen. There is an abundant sediment, which, on examination by the microscope, is found to consist of blood-corpuscles, renal epithelial cells, and numerous *epithelial casts;* these bodies being composed of fibrin, which, having been exuded fron the Malpighian bodies, has coagulated in the tubes, and escaping thence, has formed solid cylindrical casts of the interior of these, blood-corpuscles and epithelial cells having become entangled in them: occasianally, also, there are crystals of lithic acid. The earliest indication of the return of the kidneys to their normal condition is an increase in the secretion of urine, this increase being generally preceded by the disappearance of the dropsy. Should the attack, however, terminate fatally, both kidneys are generally found diseased, being enlarged, heavier, and more vascular than in health. Microscopically, the cortical portion of the glands is found the most affected, the morbid deposits being chiefly limited to the interior of the convoluted tubes. These tubes are seen to be unnaturally opaque, being distended by epithelial cells, the result of the desquamative process; frequently these cells may be pressed out of the tubes, when they are found to present exactly the appearance of the casts which have been shown to exist in the urine. The author's remarks upon the pathology of this disease are valuable and to the purpose, and tend to prove "that all the changes of structure commence in the secreting cells of the gland, and are the result of an effort made by the cells to eliminate from the blood some abnormal products—some materials which do not naturally enter into the composition of the renal secretion." As regards the cause of the increased flow of urine which takes place as convalescence progresses, two explanations may be given—either the Malpighian bodies are excited to the profuse secretion of water by the desquamated epithelium in the tubes acting as a stimulus; or it is a consequence of the urea and other unrinary constituents having accumulated in the blood during the acute stage, and subsequently, on finding a free outlet, acting as diuretics. This latter explanation appears to us the most probable, on account of the powerful diuretic properties of urea, which substance has been found to be a useful agent for promoting diuresis.

The subject of "chronic desquamative nephritis," the cirrhosed or granular kidney of other authors, occupies the fourth chapter, this affection being thus described:—

> "The disease in question is characterized by a long-continued shedding of epithelium, which appears in the urine in a more or less disintegrated state—a phenomenon which suggested the name of 'chronic desquamative nephritis,' as sufficiently expressive of the nature of the disease. The tubes gradually lose their epithelial lining, and subsequently become atrophied, or filled with some new and frequently an unorganized material; or, lastly, they continued to be nourished, secrete serum into their cavities, and so become dilated into cysts. Meanwhile the renal blood-vessels undergo changes which are of great pathological interest and importance. The kidney, in the advanced stages, is commonly, but not invariably, much wasted, its substance firm, and its surface irregular. The urine, is, for the most part, albuminous; its quantity and specific gravity variable, but the former usually greater, and the latter less, than in health. The disease is frequently a consequence of chronic gout, or of some allied disorder of the general health. It produces great changes in the blood, and many and various constitutional disorders consequent upon these changes, amongst which the most frequent and important are anasarca and dropsy of one or more serous cavities, inflammation of the serous membranes, hypertrophy of the heart, with or without disease of the valves, and lastly, either structural changes or great functional disturbance of the nervous centres. Such are the general features of the disease."

The limits within which it is necessary to confine this review prevent our doing more than to notice that Chapters V. and VI. are respectively devoted to the consideration of waxy degeneration of the kidneys, and non-desquamative disease of these organs, while in the seventh chapter we find an account of fatty degeneration of the kidney, the pathology of which was first described by Dr. Johnson in the *Transactions* of the Medico-Chirurgical Society. We have before noticed the author's opinion that the epithelial cells of the healthy kidney contain a minute quantity of oil, just as occurs, in greater proportion, in the cells of the healthy liver. This being granted, the disease under consideration may be briefly described, according to Dr. Johnson's view, as an excessive increase of this fat, leading to engorgement of the epithelial cells, and of the urinary tubes; the presence of albumen and blood in the urine and the wasting of the renal tissue being secondary phenomena, somewhat dependent on the mechanical pressure of the accumulated fat.

In Chapter VIII. the author gives the history of those forms of renal affection attended with the secretion of pus—suppurative nephritis—dividing his subject into four parts, according as the disease arises from—1, Morbid conditions of the blood; 2, External violence; 3, Retention of urine;

and 4, Calculi in the Kidney. These different varieties are illustrated by some interesting cases.

Chapters IX. and X. contain the history, symptoms, &c., of tubercular or scrofulous disease of the kidneys, and of cancer of these glands, while the work is concluded by a chapter on hæmaturia, which although, as a general rule, only a symptom of disease or injury of some part of the genito-urinary tract, is valuable as forming a kind of summary of the whole.

From the foregoing remarks our readers will, we trust, be enabled to form an idea of the contents of Dr. Johnson's work, the perusal of which has given us both pleasure and profit. In taking leave of the author, it only remains to tender him our thanks for this most valuable contribution to medical literature.

A Practical Treatise on Diseases of the Skin. By J. MOORE NELIGAN, M.D., M.R.I.A., &c. 8vo., pp. 439. 1852.

IF there is any one department of medical science which more than another demands attention and investigation, it is the much-neglected subject of dermatology. The skin is an organ second to none in importance in the human economy. It is not a mere envelope, gracefully concealing and protecting the cellular and muscular tissues which it covers; but in addition to this important duty, it performs the office of a secreting and exhaling membrane; and whether we regard its extent of surface, or its normal and copious transpirations, we cannot for a moment hesitate to conclude that health, and even life, must be placed in jeopardy by anything which materially interferes with the integrity of the structure or functions of the skin. Its sympathies are acknowledged to be as extensive as the organization of the whole system; and as an indication of organic disease, the physiognomy of the skin is often of more diagnostic value than all the other signs put together. It is impossible, indeed, to overrate the importance of this organ, and yet, strange to say, we know less of its diseases than of the pathology of every other structure. If the established principles of our science are attacked, either by the rude assault of the quack, or by the more refined scepticism of the unpractised philosopher, our blood boils with indignation; we resent the impertinence as becomes men, conscious at least of being far above the notice of such criticism. But we forget that the uninitiated, whether they be barbarous or educated, can only judge of our pretensions by analogy. We profess to become cognizant of the nature of disease by the vigilant and observant exercise of our senses. We examine by the eye, the touch, the ear, nay even by the smell and taste. Here is an organ which we can see, and sight is the best discriminator of disease: moreover, we can feel the skin as well as see it. Still we do not understand its diseases; how to cure them is not known, and yet we do not question the accuracy of our knowledge as regards those structures which we never see during life, except by accident or operation. How is the looker-on to reconcile this apparent discrepancy? To him it would appear that the best dermatologist would prove the best physician; that he who understood the *seen*, might probably know something of the unseen; that he who had mastered the *pons asinorum*, might possibly become in due time a mathematician. We confess that there is a vein of common sense in this reasoning. We do not study the diseases of the brain, or of the heart, or of the lungs, as if these viscera had no investing membranes; and as to the diseases of the parts contained within the cavity of the abdomen, what tyro would think of them for an instant as independent of the peritonæum, and its fearful tendency to inflammation? But the dermis is met with in an inflamed condition at least a hundred times more frequently than the peritonæum, and is so much the more important than the latter membrane, inasmuch as it covers the whole body instead of a part of it only. Nor are its diseases less fatal. Erysipelas and scarlatina, rubeola and variola, destroy ten times as many lives as peritonitis, and the chronic diseases of the skin are far more various, and painful, and inveterate, than the chronic affections of the internal membranes. We find adhesions of the pleura and peritonæum, and other evidences of gone-by attacks of chronic inflammation, in the bodies of deceased patients, whose friends never heard of any explanatory complainings. But the scarred or contracted dermus truly chronicles an already well-known history of chronic inflammation and its torments.

We took up Dr. Neligan's work, a goodly octavo of 439 pages, in the faint but often disappointed hope, that the rudiment of medical knowledge, cutaneous pathology, might be found presented to us in some new and intelligible form; that the principles of treatment might be found elucidated, and the opprobrium set aside as a thing of the past. We are sorry to say we found it to be a very imperfect compilation of what has already been written on cutaneous diseases in England and on the Continent; and nothing more. We say a very imperfect compilation, for had we been presented with a full and comprehensive digest of *all* that has recently been effected in this department, we would have accorded our thanks to the author. But the most material contributions are wholly passed over or ignored; and whilst we find nothing new in the anatomy or pathology of the skin, the therapeutical researches are at least a quarter of a century behind the age. For the hundredth time we are told of the "extreme obstinacy" of these diseases, of the "very frequent failure of every remedy;" and, if we look for instruction and guidance, we meet with a host of contradictory opinions. Not a single case is related, and scarcely an argument adduced, calculated to elicit the real truth. No mention is made of the revolution which has taken place in the treatment of these diseases during the last five or six years, commenced in the year 1846, in a series of papers by Mr. Hunt, published in The Lancet. By establishing, in the first place, the constitutional nature of these diseases, he thence inferred the *necessity*, and then by details of facts demonstrated the *success*, of constitutional treatment. The same writer, by showing the conditions and circumstances in which arsenic is indicated, and by introducing a new and safe mode of administering the mineral, at once transferred these diseases *en masse* from the category of the incurable to that of the curable maladies. And we venture to say that there are few English practitioners who have failed to profit by these important investigations. We are therefore astonished to meet with an author advocating the pernicious doctrine that the dose of arsenic should be "small, increased very slowly, and continued for a lengthened time," after it has been abundantly proved, that by far the safest and most effectual method is to begin with an average dose, and decrease it by degrees, as its influence becomes manifest. We have never once heard the soundness of this doctrine impugned; on the other hand, several of our correspondents have confirmed its accuracy by successful results in practice.

Unlike some modern theorists, the writer seldom ventures a strong opinion of his own, still more rarely an original thought. The work has at least the negative excellence of being free from extravagant and fruitless conjecture on a subject susceptible of inductive development.

Great Artists and Great Anatomists. A Biographical and Philosophical Study. By R. Knox, M.D., F.R.S.E. pp. 213. London: Van Voorst.

"When self-interest," says Shenstone, "inclines a man to print, he should consider that the purchaser expects a pennyworth for his penny, and has reason to suspect his honesty if he finds himself deceived; also, that it is possible to publish a work of no value, which is too frequently the product of such mercenary people."

The writer of this biographical notice, we think, will have disappointed most, if not all of his readers. In fact, we had, at the close of the perusal of the volume, come to the conclusion that it was intended as the autobiography of himself, modestly taking the names of George Cuvier, Geoffroy St. Hilaire, and the artists, Michael Angelo, Leonardo da Vinci, and Raphael, as an apology to bring in his own great workings in the department of science, of which in former days he was acknowledged a respectable teacher. When an author takes upon himself to criticise the affairs and the proceedings of a nation, he should inform himself of the truth and the actual facts; in this particular we have no hesitation in saying that Dr. Knox has either forgotten or misstated them; certainly with reference to the College of Surgeons and the distinguished curators. Is he aware that we have now twenty volumes of catalogue, expressly arranged for the purpose of explaining the museum of Hunter? What, indeed, did many foreigners say when they visited the museum during the late Exhibition. Did they not all confess the superiority of it, and that they could now enjoy the study of its contents with the simple aid of the catalogue? We have evidence amply-sufficient to contradict the statement of the author of "Artists and Anatomists," that the work is not written in a spirit of hostility, for, like Ishmael, his hand is against every one. The language in which the whole of the onslaught is couched is, to say the least of it, discourteous, talking, as he does, of "grubbing together more bones," and then following the dictation of "*Couvier.*" The College was never, even in the days of the highly-gifted founder, John Hunter, in so finished a condition for the education of the surgeon or anatomist as at the present time; and however much he may think he has raised his own reputation, by detracting from that of others, amongst the "pirates and contrabandistas, and *id genus omne*" of the English, so called by the author, we console ourselves in the name of Owen, as a genius and naturalist which will live in posterity, and be recognised with as much veneration as some of the idols of Dr. Knox. The author claims in his essay the distinction of discoverer, theorist, and critic; but we have been led to doubt his right to either. There are numerous examples of obscurity of language. His meaning we have had great difficulty in arriving at, excepting that the author of "Great Anatomists and Great Artists" claims to be the only man in Britain who can be recognised as understanding the language of Hunter. We dismiss this little volume by stating that we expected an interesting and finished work, but have been grievously disappointed, and regret that one who could say so many good things, has done it in so bad a spirit, that, like Timon, "his bite is general."

The Spirometer, the Stethoscope, and Scale-Balance: their Use in Discriminating Diseases of the Chest, and their Value in Life Offices, &c. By John Hutchinson, M.D. 8vo., pp. 79. London.

Dr. Hutchinson's labours in the cause of vital statistics are well known. The spirometer and its uses were long since mentioned fully in The Lancet, and this little work is a *résumé* of his experience and experiments. It is more complete than any of the previous works of Dr. Hutchinson on this subject, and cannot fail to be useful.

Foreign Department.

Curious Case of Neuroma pervading all the Nerves of the Economy.

M. Houel has brought before the Surgical Society of Paris a remarkable case of neuroma, affecting all the nerves of the frame. Before entering into particulars, M. Houel stated that six analogous cases have been recorded. Two of these were noted by M. Serres, in 1847; he calls them, in the "Comptes Rendus" of the Academy of Sciences, "ganglionic transformations of animal and organic life." Two other cases were reported by Schiffener and Wurtzer and Professor Smith, of Dublin, has cited two examples of the kind in his excellent work on "Neuroma."

The patient, in the present instance, was admitted into the clinical hospital of the faculty, March 16, 1851, for the removal of a tumour situated in the right groin. Other tumours were found on the abdominal walls, on the neck, the arms, and in the axilla; the patient, however, was not aware of having so many tumours upon him, as they never had given him much pain. The tumour in the groin made walking uncomfortable, and became somewhat painful with changes in the weather. This was removed by M. Giraldès, on the 1st of April, 1851, and the wound took three months to cicatrize. The patient was readmitted some time afterwards, and died on Dec. 17, 1851, no further operation having been attempted, owing to the great number of the tumours.

No pain in the neuromatous growths was ever complained of, and great emaciation preceded the patient's death.

On an inspection of the body, all the viscera were found healthy, and neither the brain, cerebellum, nor spinal cord, contained any tumours. In the cauda equina, however, there were a great number, as many as twenty being found on one single filament. Bischoff has recorded an analogous fact; and he had even found neuromatous growths on the roots of the cerebral nerves, one of the tumours on the seventh pair, before it leaves the skull, being of the size of a small strawberry.

M. Houel did not find the nerves affected at their intra-cranial origin, but further on they presented numerous neuromatous growths, with the exception of the olfactory and optic nerves. There were likewise tumours on the motor oculi, and on the fourth nerve; the fifth also presented several neuromatous growths on each of its three divisions; they were especially numerous on the lingual and infra-orbital nerves. The distribution of the tumours was pretty similar on both sides; the seventh pair presented many growths along its distribution on the face, but the pneumogastric had the greatest number of them, and looked like a coral necklace. There were also many such tumours on the œsophageal, pulmonary, and cardiac plexuses, and all the spinal nerves were the seat of neuromata immediately after their leaving the spinal foramina.

M. Houel found a great many tumours on the cervical plexus, both as to the superficial and deep branches; the brachial plexus had also a great many, and upon a nerve belonging to this plexus the largest neuroma was found, it being about the size of a hen's egg. All the terminal branches on the right and left were studded, and the dorsal nerves bore numerous traces of this fibrous diathesis, as M. Houel calls it. The ribs had, in several places, been affected by the growth, and portions of their substance were found here and there absorbed.

The lesion seemed to be more complete as regards the lower limbs, for the lumbo-sacral plexus presented on either side more neuromatous tumours than the axillary; the sciatic nerve had a great many, and looked as if hypertrophied. M. Houel drew the attention of the Society to the fact that the nerves had assumed a varicose aspect; they looked longer and somewhat twisted, and it was easy, during the dissection, to unroll them, when they were seen to resume their normal direction. The great sympathetic was much enlarged, but there were no growths upon it. Some of these were, however, found on the splanchnic nerves. On a microscopic examination, M. Robin found these tumours composed principally of fibrous tissue, and noticed in them very few fibro-plastic elements.

Discussion in the Academy of Medicine of Paris, on Induction of Premature Labour.

A very animated debate has just been concluded in the Academy of Medicine of Paris, regarding Induction of Premature Labour, in cases of extreme narrowing of the pelvis and of uncontrollable vomiting. The principal speakers were M. Cazeaux, the reporter of a paper on the subject, and M. P. Dubois. These gentlemen, who both hold an eminent position as obstetricians, disagree thoroughly on the question. M. Dubois advocates induction of premature labour in cases of obstinate vomiting, and rejects it in narrowing of the pelvis; whilst M. Cazeaux holds exactly contrary opinions. The paper which gave rise to the discussion was sent in by M. Lenoir, who requested the learned body to give an opinion on the question. He had, in fact, performed the operation upon a deformed woman, whose first child had been extracted in fragments, and he was anxious that the Academy should give its sanction to the proceeding, which sanction M. Dubois thought his colleagues should withhold.

We cannot enter into all the merits of the discussion, which was very animated and extremely instructive; we may, however, notice, that M. Dubois was proved to have himself advocated induction of premature labour in his lectures, and it was shown that his opinions must have since been materially modified. A feature of importance in the latter gentleman's speech is the relation of seven or eight cases of obstinate vomiting, which were mostly followed by death. In one of these cases induction of premature labour saved the patient and the child. M. Cazeaux showed very forcibly how preferable is induction of premature labour to the Cæsarian section or craniotomy; and the Academy, after a very protracted discussion, at last adopted the following conclusions, which are by far more reserved than those at first proposed by the reporter: "Whereas M. Lenoir was sufficiently warranted in having recourse to induction of premature labour in the case of Julie Gros, by the authority of two cases previously thus treated, and by the consenting voice of several of his professional brethren called in consultation, the Academy thanks the author for his interesting paper, and recommends the latter to the Committee entrusted with the publication of memoirs."

Alleged Death from Chloroform; Aneurism of Bone.

M. Pamard, of Avignon, lately submitted to the Academy of Medicine of Paris an instructive case of supposed aneurism of the fibula, and death, alleged to be from chloroform, a week after the operation. The patient was a young soldier, twenty-seven years of age, who, while engaged in gymnastic exercises, felt a sudden pain in the leg, and was obliged to desist. A tumour, about the size of half an egg, was now noticed over the left fibula. Various means were used for some time to disperse the swelling, but to no purpose. The man was at last transferred to the hospital of Avignon, when the tumour had reached a very large size. It was elastic, seemingly surrounded by a thin, osseous shell, closely attached to the fibula, but unadherent to the tibia. There was no fluctuation, no *bruit de soufflet*, and no pulsation. M. Pamard had recourse to extirpation whilst the patient was under the influence of chloroform, administered with an oil-skin bag, in which were several little sponges, moistened with chloroform. As the patient was not affected by the drachm of chloroform which had been poured into the bag, another drachm was added, which sent him to sleep. The tumour was opened before it was finally removed, and found distended with a considerable quantity of clots, evidently of very old formation. M. Pamard then thought that the tumour was really an aneurism of bone.

The patient fell, during the operation, into a state of syncope, though there had been very little hæmorrhage; ammonia was used, and as soon as the leg was dressed, he was taken to bed, where warm flannel was placed upon the limbs and the præcordial region. No reaction ever took place, the pulse regained no force, and the man remained in a passively languid state for nine days, and died, in spite of a great variety of stimulants which were used to rouse the system.

On a post-mortem examination, the affected leg was found completely sphacelated, and the tissues infiltrated up to the thigh, but no attempt at healthy inflammation could be perceived. The tumour was springing from the fibula, surrounded by a thin, osseous envelope; and where this was deficient, it was replaced by a fibrous tissue resembling the periosteum. The interior of the tumour was filled by a considerable mass of solid clots. It was found impossible to trace the vascular connexion between the cavity of the tumour and the bone. M. Pamard attributes the gangrene of the limb to the complete state of prostration into which the patient fell immediately after the operation, and thinks that the inhalations of chloroform had been mainly instrumental in that result.

Three surgeons of eminence—viz. M. Roux, M. Velpeau, and M. Cloquet—took part in the discussion to which this communication gave rise. M. Roux stated that deaths of this kind had taken place before the use of anæsthetic agents was introduced, and that he doubted very much that chloroform was to blame in this instance. He had, on the other hand, several years ago described this kind of aneurism of bone, and was of opinion that the ligature of the main artery of the limb might have been resorted to, instead of extirpation.

M. Velpeau thought the tumour was more of a cancerous than of an aneurismal nature; he had seen several such growths, and would class them among the fungus hæmatodes variety. As to the chloroform, he quite agreed with M. Roux.

M. Cloquet concurred with M. Velpeau as to the nature of the tumour, but thought the chloroform very probably was the cause of death.

It is plain that the tumour in question did not present any of the symptoms of aneurism of bone, as described by Scarpa; nor will the term fungus hæmatodes, as applied in this country, agree with the growth and appearance of the swelling. It would, with English surgeons, probably be ranked among encephaloid growths broken down by hæmorrhage. As to the effects of chloroform, opinions will probably be divided; but as there was previous good health, and little hæmorrhage, one might be inclined to look to the chloroform for the fatal results of the operation.

Gun-shot Wound in the Cervical Region; Deligation of the Vertebral Artery; Necrosis of a portion of the body of the Sixth Cervical Vertebra; Death; Autopsy.

M. Maisonneuve, of Paris, has laid the following instructive case before the Academy of Medicine. A lady was shot by her husband, who stood close to her, with a pistol loaded with ball. The wound was inflicted on the anterior part of her neck, on a level with the left side of the cricoid cartilage. The hæmorrhage had been considerable when the surgeons, Messrs. Maisonneuve and Favrot, arrived, though the wound looked, at first sight, as if it had not penetrated deeply. There were pain and numbness of the left arm; respiration, voice, and deglutition were, however, normal. By sounding, it was found that the cricoid cartilage had been bared, and that the ball had then run from above downwards, leaving the trachea and œsophagus internally, and the common carotid, internal jugular, and pneumogastric externally, and had become impacted into the body of the sixth cervical vertebra, where it could easily be felt. Some attempts at extraction were made, but they excited so much pain that they were given up. The patient was bled six times in four days, and was given large doses of opium; she improved considerably under this treatment, and the inflammation was very moderate.

On the eighth day hæmorrhage occurred at the wound, and also on the ninth day, but it stopped of itself on each occasion. When, however, it broke out a third time, the surgeons proceeded at once to search for the bleeding vessel. An incision, about three inches long, was made by the anterior edge of the sterno-mastoid muscle, a little external to the wound inflicted by the ball; the carotid sheath was then brought into view, the vessels being found intact. The cricoid cartilage and the first rings of the trachea were afterwards seen to have been grazed by the ball, which was found implanted in the body of the sixth cervical vertebra, whence it was easily extracted. Severe hæmorrhage ensued immediately upon the removal of the ball, the blood seeming to proceed from the vertebral artery, which appeared to have been wounded within the canal formed by the foramina of the transverse processes. By placing the finger on the hole left by the ball, the orifice whence the blood issued was distinctly seen; forceps were applied to it, and held firmly for a little while to arrest the hæmorrhage, and an aneurismal needle, with a very small curve, was then made to carry a double thread behind the vessel. One of these was used to tie the artery above, and the other below the aperture whence the blood issued.

The operators at first thought they were mistaken in supposing that they had tied the vertebral artery, as the vessel seemed quite free, whilst it is known to be protected by the transverse processes in that locality, and believed they had secured the inferior thyroid. This will be cleared up by the autopsy. The hæmorrhage ceased at once, and some smaller vessels were then tied, among which was, as afterwards appeared, the inferior thyroid artery. Everything now went on favourably; the threads fell on the ninth day after the deligation of the vessel, and the patient remained in a satisfactory state for the next five days, when severe febrile symptoms, unpreceded by shivering, set in upon a moral shock; and on the eighteenth day after the operation, and twenty-seventh after the reception of the wound, the patient was suddenly seized with a violent pain in the cervical region, cried out loudly, and fell into deep coma, which lasted for about seven hours, when she expired, notwithstanding the most strenuous means were used to rouse her.

On a post-mortem examination, the course of the ball was found as stated above—viz., it had run from the integuments to the body of the sixth cervical vertebra, leaving the trachea and œsophagus internally, and the carotid sheath and its contents externally. The inferior thyroid artery was wounded just before it reaches the thyroid gland, and had a firm clot, about half an inch in length, filling its cylinder. The transverse process of the sixth cervical vertebra was fractured, and had left the wounded vertebral artery unprotected. The vessel above and below the wounds in its coats was filled with a firm clot for about an inch in each direction. The body of the sixth cervical vertebra had been perforated by the ball, and the latter had dug for itself a canal, which communicated with the cavity of the spine by a small aperture, evidently of very recent formation. This aperture resulted clearly from the necrosis of the thin shell of bone which formed the bottom of the canal. The cancellous texture of the body of the vertebra was infiltrated with pus, and a sero-purulent fluid was found in the spinal canal, both in the cellular tissue external to the dura mater, and in the subserous texture of the meninges. No other lesion existed in any other part of the frame.

INOCULATION FOR SMALL-POX.

For the insertion of a clause in the Vaccination Act, making the practice of inoculation for small-pox an offence punishable by a month's imprisonment, the public are indebted to the Editor of this Journal. That clause, it will be seen, is very comprehensive, and would appear to apply to all the cases in which attempts might be made to propagate the small-pox.

"And be it further enacted, that any person who shall from and after the passing of this Act produce or attempt to produce in any person by inoculation with variolous matter, or by wilful exposure to variolous matter, or to any matter, article, or thing impregnated with variolous matter, or wilfully by any other means whatsoever produce the disease of small-pox in any person in *England*, *Wales*, or *Ireland*, shall be liable to be proceeded against and convicted summarily before any two or more justices of the peace in petty sessions assembled, and for every such offence shall, upon conviction, be imprisoned in the common jail or house of correction for any term not exceeding one month."

No one will deny that this enactment has saved the lives of thousands; but doubtless, in many of the less civilized districts of England, inoculation for small-pox is still practised amongst the ignorant and prejudiced. The absence of any such law in the Isle of Man was found to be highly prejudicial to the health of the inhabitants; and we were gratified the other day by receiving an Act lately passed by the authorities of that island, rendering the practice of inoculation punishable by *three months'* imprisonment. In addition, however, to this extension of the Act of 3 & 4 Vict., cap 29, the legislature of the Isle of Man has inserted the following clause in its Act:

"And be it further enacted, that if any person shall unlawfully, injuriously, and with full knowledge of the fact, expose in a public highway or other place of public resort, any person infected with small-pox, or any other contagious or infectious disease, he or she shall, in like manner, be liable to be proceeded against summarily before a high bailiff, or before two or more justices of the peace, and being thereof convicted, shall be imprisoned in the common jail, or house of correction, for any term not exceeding one month."

The English law does not punish by statute for mere exposure; but in the case of Rex *v.* Vantandillo, (4 Maule and Selwyn,) Mr. Justice Le Blanc said it was punishable as a nuisance; and in Rex *v.* Barnett (*ibid.*,) Lord Ellenborough admitted the lawfulness of inoculation at that time, yet it was then to be so practised as not to endanger the public health. It would appear, therefore, that we can legally impeach persons who wilfully expose an individual suffering from small-pox; but it must be admitted that the authorities of the Isle of Man, by defining it as an offence, and punishable accordingly, have conferred a great boon on the inhabitants of the island. The Attorney-General of the isle has taken great interest in this subject, and in so far as the above clause is concerned, has shown himself in advance of the imperial legislature.

THE SUFFOLK IMPOSTURE.

To surround any absurdity, however trifling or ridiculous, with an air of mystery, is to invest it with an attraction and charm apparently irresistible to the majority of mankind. Credulity is the source of far more error than ignorance, and when joined with superstition, is capable of holding the unthinking portion of the human race in chains which it is vain to endeavour to rend asunder by truth or common sense. The follies and falsehoods of Mesmer would have attracted but little attention, at least in the present day, but for the pretended wonders of clairvoyance; while, had the homœopaths followed in the ways of the ancients, and attempted the cure of diseases by diet, without attributing absurd impossibilities to infinitesimal doses of drugs, they would but have experienced the treatment of those whose system they copy, and long ere this must have sunk into that sea of forgotten absurdities, where so many systems of quackery—quack medicine, quack divinity, quack patriotism, and impositions of all kinds and degrees—already repose. The number of educated people, even, who incur the responsibility and trouble of thinking for themselves, is indeed small; and we see nothing in the signs of the times to lead us to the conclusion that they are on the increase. These thoughts have been suggested by the publicity which has been given to an example of the old form of hysteria, not even dressed up in a new garment, which has been going the round of the papers, to the astonishment of many besides country bumpkins. The facts of this "extraordinary case" may be thus stated:—

At Shottisham, in Suffolk, about thirteen miles from Ipswich, there dwell Asaph Squirrell, his wife and family, a girl named Elizabeth, the heroine of the tale, forming one of the latter. While a mere child, she gave evidence that she possessed a very superior mind. At ten she was placed under the care of Mr. Osborne, the village schoolmaster, who soon perceived that his pupil was possessed of great natural ability. She was attentive to her studies, and while others were at play, she would be closely engaged in poring over the books that composed Mr. Osborne's library. Having a religious turn of mind, she read upon all theological points. She also made herself acquainted with the English poets, with history, with parts of botany, and with phonography. In June, 1850, at the age of twelve, she left the school from illness, occasioned, it is said, by too close attention to her studies. Her illness assumed the shape of a spinal affection, for which she had the best medical advice, and was subsequently sent to the East Suffolk Hospital, in Ipswich, where she remained about six weeks. She then returned home, became worse, and lock-jaw set in, depriving her, as it was alleged, of the power of swallowing. She lived on suction, milk being poured down her throat; but the quantities were so small that her death was daily expected. She, however, to the astonishment of her friends and the villagers, continued to live on, although it was said she did not take a morsel of solid food. At Midsummer, 1851, she recovered from her lock-jaw, but it was alleged that she had previously been seized with blindness and deafness. The way in which she had lived began to be talked of, and some excitement was occasioned among the gossips of the neighbouring villages. But about this time the writings and speeches of the child occasioned considerable interest, which was heightened by the assertion that she still ate no food. Persons living in the locality came to visit her, and found the patient in a humble apartment, supported on her bed by pillows, with a countenance which most of them called "angelic." Although it was alleged she could not see, her eyes remained open, and but little defect could be observed in them. Her visitors were assured that for nearly two years not a particle of solid food had passed her lips; and that for the last three months neither food nor drink of any kind had been taken. These statements were confirmed by her parents. The girl's statement regarding herself and her alleged peculiar condition was, that she had seen a vision of angels, one of which number had consented to become her constant attendant and guardian.

Some gentlemen in Ipswich, who had become deeply interested in the case, at length felt that it was quite time some systematic effort should be made to test these statements to their fullest extent, and judged that an eight days' trial would settle the matter as to whether or not she partook of any kind of nourishment. Accordingly, two women of good character were selected, *at the earnest entreaty of the father of the girl*, who were instructed to keep watch over her for eight days and eight nights, it being an instruction that the room should never be left without one of them being present. Three weeks since they commenced their task, receiving their instructions from a medical man, and at the end of eight days returned to Ipswich, declaring that the child had not had anything to its lips during the whole term, and that they were thoroughly convinced it was a genuine case. This, however, did not fully satisfy the gentlemen alluded to. The thing was now universally talked of in these localities, and it was determined to spare no pains to test it to the utmost. They formed themselves into a committee of eight persons, and drew up regulations for their guidance; one was, that for eight days and nights she should never be left unwatched; and another was, that each gentleman on guard should make a written entry of the events that occurred every hour, and that he should sign his name to it. (The report of this committee has not, as yet, been published.) On Saturday, August 21st, this watch commenced and went on without the slightest thing to excite any suspicion, excepting a little restlessness, until the evening of the following Thursday, when Messrs. Pitcairn and Burton (bookseller) were relieved by the Revs. Webb and Whitby. The former gentleman had long been a sceptic in the matter, and on entering the room thought he discovered an unpleasant smell. He left for an hour's walk, leaving Mr. Whitby in charge. The father then entered, and complained of the want of faith which the watchers in charge manifested, and then suggested that they should seek the blessing of God. He immediately knelt down and prayed with great apparent earnestness and solemnity, and at considerable length. Mr. Whitby was close to the bed, and during the prayer noticed some agitation of the clothes, and fancied that something was offending his olfactory senses. When Mr. Webb returned, Mr. Whitby mentioned his suspicions, and as the nose of the former gentleman again convinced him that something was wrong, he insisted that the bed should be searched. Two nurses, who were also present, proceeded to make the examination, and they reported that all was right—not a suspicious thing had been found. Mr. Webb not being satisfied, and feeling the delicacy of his position, went to the clergyman's house, and secured the assistance of a medical gentleman who was staying with him. The circumstances were stated to the surgeon, who determined on instituting a further search in presence only of the two nurses. For some time their efforts had no result, but at length a bundle was discovered between the child's arm and body, which one of the nurses immediately laid hold of. The girl, as it is alleged, instantly called out, "You must not touch that."—"But I must have it," said the woman.—"But," said the deaf child, "you shan't have it.—"I will have it," exclaimed the nurse, and away went the bundle, the child, with great resignation, saying, "Well, if you will, you must." The surgeon undid the parcel, and found it to consist of about a score of napkins, bits of linen, &c., which, it is said, had been recently used. These were spread out upon the counterpane, and the parents and the two watchers were summoned in to gaze upon the not very fragrant discovery. Of course the utmost consternation was depicted on the faces of the parents. The mother immediately accused the child of deceiving her, but was properly stopped by the remark that this part of the imposition could not have been carried through without her agency. The father seemed in an agony of distress, and solemnly protested that he was entirely ignorant that the napkins were there, and that, so far as he knew, neither morsel nor drop had passed the child's lips for sixteen weeks. Messrs. Webb and Whitby, the medical gentlemen, and the nurses, immediately left the cottage, and all, with the exception of the surgeon, walked on to Woodbridge, feeling indignant at the imposition that had been practised. It is important, however, to notice, that during Saturday, Sunday, Monday, Tuesday, Wednesday, and Thursday, she had no food or drink, neither was any food found in the bedding. After the discovery, the girl folded her hands, and, looking to heaven (for it is fully believed that she has the use of her sight,) said, "I commit myself to the care of my guardian angel, and know that God will take care of me." When her father left for Ipswich, she exclaimed, "Never fear, father, I shall weather the storm—'twill all end well." We understand that her parents and herself still stoutly assert that she has taken no kind of nourishment for sixteen weeks, and that each of the three is most anxious for a further trial, which shall extend over fourteen days.

The common sense of our readers must not be insulted by comments upon this gross, not to say blasphemous imposition, which it has pleased so many miracle-mongers to foster and encourage, and which appears, through their notice and attention, to have gone to such a disgusting length. We feel no more called upon to describe the mode in which this hysterical girl procured nourishment while being watched—for nourishment she most assuredly had—than to explain the sleight-of-hand of M. Robin, or the tricks of any other adroit conjurer. It may be instructive, however, to put the case upon record, if only for the purpose of adding another example to the host that might be adduced to prove the credulity of the present "enlightened" age.

THE PATHOLOGICAL FORMATION OF FAT.

A VERY elaborate inaugural dissertation (*De Adipis Genesi Pathologica*) by B. S. Schultze, is abstracted in Schmidt's *Jahrbuch;* and we condense from this analysis the account of the most important facts. We may remark, however, that the scope of the thesis is wider than the title, and embraces the consideration of the physiological as well as the pathological presence of fat.

After an introductory chapter, defining the meaning of the term pathological formation of fat, the author proceeds to

The possible sources of fat in the system :—

1. Entrance with the food of pre-existing fat.

2. Production from non-nitrogenous and non-fatty food. In proof of this, the opinions of Liebig, Gundlach, Dumas, Milne Edward, on wax formed by bees from honey; and of Pelouze and Gelis, on the production of butyric acid from sugar, are referred to.

3. Production from nitrogenous food. The arguments for this are derived from the experiments of Budge and Traube on diabetes, and from some experiments of the authors which do not appear very conclusive.

4. Production of fat from the tissues of the body. This, however, is a pathological source.

The forces modifying the deposition of fat are then considered.

(*a*) Influence of the biliary secretion. That the liver separates fat appears from the observations of C. F. Schmidt and Lehmann on the blood of the vena portæ and hepatic vein. The bile and the fæces also contain fat. In many diseases, and in starvation, emaciation and excretion of bile equally advance. From these and various other pathological facts, it is concluded that impairment in the action of the liver tends to retain fat in the blood, or, in other words, that the liver separates fat from the blood.

(*b*) Influence of respiration. Partly from the observation of Lehmann, that the blood of the carotid artery contains less fat than that of the jugular vein, and partly from general considerations, it is concluded that fat is destroyed in the lungs during respiration.

(*c*) Influence of cutaneous transpiration. As in the case of the lungs, the greater the activity of the skin, the less deposition of fat is there in the body.

(*d*) Influence of the urinary excretion. From some experiments of Tiedemann and Gmelin, and of Lehmann, it appears probable that, in certain cases, the kidneys also may excrete fat.

(*e*) Influence of excess of water in the blood. According to Haller, frequent bleedings, with rest and good diet, cause deposit of fat.

(*f*) Influence of mechanical causes. Pressure and blows may produce lipoma (Rokitansky,) and strong frictions on the abdomen have produced deposition of fat in the walls.

After a chapter on the consequences of fatty deposition, the author proceeds to the

Pathological appearance of fat in various parts of the body.

1. In the bodily fluids. In saliva, which contains an extremely small quantity of fat, the fat is increased in mercurial salivation. In bile, occasionally, there is an excess of cholesterine. In chyle there is more or less fat, according to the kind of food; if it be in excess, it is a disease, and must lead to disease. (How does this supposition accord with the experiments of Frerichs, Schmidt, and Bidder, which show that only a certain quantity of fat is absorbed, and that an excess of it passes off with the fæces?) In blood the quantity of fat can be greatly increased, especially during the resolution of great pneumonic exudation. So also in the last months of pregnancy, Virchow has shown that there is excess of uncombined fat in the blood, which yet is indetectible with the microscope. In lymph, except when absorption of exudation is going on, there is no fat (Gmelin.) In mucus, as, for example, of the nose, there is no fat (Berzelius;) but, in inflammation, fat appears, according to Simon.

In the fluid of the Graafian follicles fat appears abnormally, in the form of granular cells, or as oil in the fluid of cysts. In milk, fat appears in quantity, according to the food, and abnormally in certain cases. In sweat there are normally traces of fat containing butyric acid; in colliquative sweats this is increased (Simon.) In normal urine there is no fat; in disease fat may swim on the surface, (Elliotson and Bachetoni,) or may be diffused in drops.

2. In the solids of the body.

(*a*) In the panniculus adiposus, or in the general areolar tissue, fat is only abnormal when in excess.

(*b*) In the liver, kidneys, pancreas, and other organs, such as the nerves and muscles, after long inactivity. In the description of these lesions there is nothing original.

(*c*) In the place of other parts, as in glands, muscles, bones, etc. These "fatty degenerations" are described after Rokitansky.

(*d*) Fatty growths (Lipoma, Atheroma, etc.) The term gypso-steatoma is used to denote the fatty growths which have become calcified, a very unnecessary term.

The author then enters upon the consideration of the somewhat enigmatical granular cells, or so-called exudation corpuscles, and discusses the opinion of Reinhardt, who supposes that they are owing to retrogressive metamorphosis of cells, and are, in fact, always secondary. The author puts three questions, viz :—

1. What cells can undergo the fatty retrogressive metamorphose? According to Virchow and Reinhardt, every kind of cell can thus retrograde under certain conditions.

2. Under what conditions does this happen, and in what manner does the fat appear in the cell? According to Virchow, the fatty retrogression appears to be connected with the quantity of material contained in the cell. The author, however, believes the amount to be merely a symptom of the already-commenced metamorphosis, and not its condition, and attempts rather to connect the tendency to fatty change with some peculiarity in the nature and time of origin of the nucleus.

The fat which appears in the cells may be supposed to be there in three ways.

(*a*) It may be absorbed from without. Virchow denies that the fat appears in this way, and states, that, when it is thus absorbed, it forms large drops, which gradually unite. The author admits the general correctness of this observation, but appears to believe that this absorption may occur sometimes.

(*b*) The fat may pre-exist in the cell. Virchow denies this also. The author thinks it occasionally occurs.

(c) In the transformation of protein constituents. In this change Virchow seeks the origin of all the fat in all the cells which undergo fatty metamorphose. The author admits this mode of formation, but not, like Virchow, to the total exclusion of the other two.

3. What influence has the fatty metamorphose on the life of the cell in which it occurs, or on the life of the organ of which the cell forms a part? While, of course, Virchow and Reinhardt see in the fatty metamorphose a retrograde change, and therefore necessarily a tendency to the death of the cell, the author seeks to prove the exact contrary, and to show that the cell after this change is gifted with unusual life, and that the fat is plastic. When the granular fat appears in a cell, it enlarges to three or four times its volume. The general conclusions of the whole thesis are thus given:—

1. The fat formed out of fat holding food enters the body in the form of drops, and also in a state of fine division.
2. In healthy systems fat can also be formed out of non-fatty and non-nitrogenous food.
3. Albumen and other protein bodies are not changed into fat by a healthy system.
4. In unhealthy men, protein substances can be changed into fat.
5. The deposition of fat in organs depends in part on the non-action of the liver, which separates fat from the blood of the vena portæ.
6. The respiration and transpiration have the greatest influence on the retention or separation of fat from the blood.
7. The fat taken in with the food serves especially for respiration; sometimes, also, for the nutrition of organs.
8. Fat appears to assist much in cell-formation.
9. There is no determined limit between the fatty degeneration of organs and the fatty metamorphose of the special structure of the organ.
10. Calcification proves the retrograde metamorphose of many new formations.
11. The development of cells into granular cells is not a retrograde metamorphose.—*Schmidt's Jahrbuch.* 1852. p. 147.

BLOOD-CHANGES IN DISEASE.

A recent elaborate memoir on diseases of the blood, presented to the Academy of Sciences by MM. Becquerel and Rodier, winds up with the following conclusions:—

1. In most chronic diseases, or in consequence of various hygienic influences, the three principal elements of the blood,—viz., the red particles, the fibrin, and the albumen, may diminish or augment in quantity, separately or conjointly.
2. The red particles diminish in most prolonged chronic diseases, especially in organic diseases of the heart, in Bright's disease, chlorosis, paludal cachexia, hæmorrhages, the last period of tuberculosis, the cancerous diathesis; the globules diminish also when the individual has been insufficiently nourished, or has been exposed to bad hygienic conditions, such as insufficiency of air, want of light, or to humidity.
3. The albumen diminishes in the last stage of heart diseases, great symptomatic anæmia, cancerous diathesis, and when the nourishment is insufficient.
4. The fibrin remains normal, or is sometimes augmented in acute scurvy. In chronic scurvy, and in the symptomatic scorbutic state which attends some chronic maladies, especially in organic diseases of the heart, it diminishes.
5. In all the above cited cases the water of the blood increases in amount.
6. The diminution of globules is shown especially by decoloration of the skin, palpitations, dyspnœa, systolic murmur at the base of the heart, arterial and venous murmurs.
7. The diminution of albumen produces dropsy; speaking generally, dropsy is the symptom of diminution of albumen.
8. The diminution of fibrin shows itself by cutaneous and mucous hæmorrhages.
9. In the symptomatic anæmia of great hæmorrhages, of bad nourishment, and of too great catamenial flow, the specific gravity of the blood diminishes, the water augments, the blood globules diminish, the albumen remains normal or slightly diminishes; the fibrin remains the same.
10. In chlorosis, which is an entirely different disease from anæmia, the blood may be completely normal. When any changes occur, they are in the augmentation of the water, the diminution of the red particles, and the conservation of its normal figure or the augmentation of the fibrin.
11. In acute Bright's disease, the fibrin remains the same, the albumen diminishes; in chronic Bright's disease, the globules and albumen diminish; the fibrin remains normal or diminishes.
12. Most dropsies, called essential, are due to a diminution of the albumen.
13. In heart disease, the blood deteriorates more and more as the disease advances. The changes consist in simultaneous diminution of the red globules, albumen, and fibrin.
14. In acute scurvy, the blood is not altered; in chronic scurvy, the fibrin is diminished, and the globules augmented.
15. Quinine and generous diet is the best treatment for diminution of the albumen; vegetable acids and good diet for diminution of the fibrin; iron for the diminution of the red particles.—*L'Union Médicale.*

CONDITION OF THE BLOOD IN STARVING ANIMALS.

Some experiments have been lately made on this point by Magendie, which are opposed to those already on record. A white mare, aged nine, glandered, was deprived of solid food, and allowed only six litres of water every twenty-four hours. The animal was bled on the 6th, 8th, 15th, and 17th days. Death occurred on the 24th day. Four analyses were made of the blood:—

	1st Bleeding.	2nd Bleeding.	3rd Bleeding.	4th Bleeding
Water . . .	821·67	808·80	802·92	755·21
Solids . . .	178·33	191·20	197·08	244·79
	1000·00	1000·00	1000·00	1000·00
The solids were				
Albumen & Salts	87·92	102·46	92·76	76·81
Globules . . .	86·96	86·51	97·61	161·89
Fibrin . . .	3·45	2·23	6·91	6·09
	178·33	191·20	197·08	244·79

On these analyses M. Magendie remarks—

"How is it conceivable that after an absence so prolonged, there should be as much albumen in the blood, as in horses well nourished. The condition of the globules is still more surprising: in fact, from the figure 86 in the first analysis, they finish by reaching 161. Abstinence did not, then, diminish the globules; and, examined microscopically, they showed nothing unusual. The fibrin, also,—that element of the blood *par excellence*, was maintained at a figure more elevated than among horses in general. The water—a circumstance still more extraordinary—was at its lowest point in the animal, which was allowed to receive nothing but water."

M. Magendie then alludes to the probability that there was alteration in the quality of the albumen and the fibrin. In proof of this it was found, that two days before death, the blood did not coagulate; and after death it was found to be acid instead of alkaline.

In a second experiment, a little dog was fed on lard; it refused it after five days, and died on the twenty-second day. During this time the dog lost 31 per cent of weight. After death the blood was found to be in small quantity, partially coagulated, bluish-red in colour, and alkaline. The red particles were visible under the microscope; the liver was excessively fatty; it contained no sugar. In reference to this experiment, M. Magendie made a singular statement. Dogs, when starved, or when fed on only one kind of aliment, such as fat, fibrin, or gelatine, (which is the same as starvation,) die in about a month. If, however, in a fortnight after the commencement of the abstinence they are fed in the ordinary way, they eat the food, but are not nourished by it, and die in the usual time, as if they had not been fed at all. The aptitude for digestion and assimilation is thus lost after a certain length of time after deprivation from food.—*L'Union Méd.*

Miscellaneous Correspondence.

WHO INVENTED URETHROTOMY ON A GROOVED STAFF AS A CURE FOR STRICTURE?

To the Editor of The Lancet.

Sir,—In a lecture by Mr. Coulson, published in The Lancet, the credit of the operation of cutting stricture on a grooved staff is given to the older French surgeons, and a statement to the same effect had previously appeared in your columns. Mr. Syme claims this invention, and his friends are indignant with those who dispute the claim.

Now, there can be no doubt, judging from the passages quoted from Desault or Bichat, that one or more of the older French surgeons performed *boutonnière* on a grooved sound, for the relief of retention of urine *caused by stricture*; and it can hardly be doubted that, when this operation was performed, it was performed, not only for the purpose of relieving the existing retention, but in order to prevent future retentions—in other words, to remove the stricture causing retention. The older French surgeons were not idiots; had the relief of the existing retention been their only object, they would have passed a catheter, instead of a grooved staff. The only difference between their proceeding and Mr. Syme's is this, that Mr. Syme does not wait for complete retention, but endeavors to *obviate* this and other dangers by the operation in question.

That Desault should condemn the proceeding, (although this, as Mr. Syme's advocates must know, has nothing to do with the point at issue,) is not wonderful. He only does that which is done by many surgeons at the present day, who think that when an instrument of any kind can be passed into the bladder, the stricture ought to be removed or relieved by other and safer means already in our possession.

If this revived operation be justifiable in less dangerous circumstances, Mr. Syme deserves credit for extending it to cases of stricture unconnected with retention. But in awarding credit under the condition mentioned, it would be unfair to the memory of Sir Charles Bell to neglect the share he had in this extension. Bell considered that he recommended a great improvement in recommending incision of the urethra in circumstances very similar to those which, in Mr. Syme's opinion, justify *his* operation. Bell, like Syme, did not wait for complete retention; and this he made the great distinction between his (Bell's) operation, and the operation of urethrotomy performed by Sir Astley Cooper, and erroneously supposed by him (Cooper) to be an original invention of his own. It is a curious fact, that Bell's operation bore the same relation to Cooper's, that Syme's bears to the operation described by Desault.

I shall conclude these remarks by hazarding the opinion, that it is no proof (as some seem to suppose) of the badness of Mr. Syme's operation, that it is occasionally the cause of death; for what operation is not occasionally fatal? I believe, moreover, that the operation itself is capable of improvement; and that the cases in which it may become a question whether or not it should be performed, will become of very rare occurrence by improvement in other remedial means, or by the more general use of the best measures at present employed.

I am, Sir, your obedient servant,
Chirurgus.

GONORRHŒA TREATED BY CHLOROFORM INJECTIONS.

To the Editor of The Lancet.

Sir,—In your valuable publication lately, I find that there are several cases respecting the cure of gonorrhœa by the injection of chloroform and mucilage. Having tried it in six or seven cases, the parties complain of severe pain for nine or twelve hours afterwards, and also after micturition there is a quantity of blood passed; also great difficulty in voiding the urine, which has, in one case, necessitated the use of the catheter. Not seeing these facts stated, I beg the favour of the insertion of these few lines.

I am yours, &c.,
Edward Hall, Surgeon.

ON VACCINATION FROM THE VACCINE ESCHAR.

To the Editor of The Lancet.

Sir,—Several communications having recently appeared in your journal, on the subject of the preservation of vaccine lymph, which undoubtedly constitutes a great desideratum, under considerations of the varied circumstances of medical experience and remote locality, (as distance from towns, situation of colonies, &c.,) I am induced to suppose, from the tenor of sentiment before me, that the present object is too much directed to the preservation of lymph in a fluid condition, and seemingly placing a negative upon other means, effectually adopted in times past, for the preservation of all the virtues of the lymph, the perpetuation of the characteristic phenomena of vaccination, the retention of these specific virtues for a lengthened period of time, and capability of transmitting these to distant countries. And as so much has been said on the means of preserving a fluid state of lymph, and such various expedients adopted for its conveyance and application, I feel convinced that the profession has in a great measure lost sight of, or otherwise never hitherto justly appreciated, the advantages, facilities, and virtues residing in the use of the spontaneously discharged *eschar* of vaccination.

I am led to arrest attention on this subject, from a conviction in my own mind, that matter in a state of moisture or fluidity, must ever have a tendency to undergo a more rapid change amidst its constituent particles, and thus tend to earlier decomposition, than matter in the state of a dry solid, and rendering the fluid lymph undoubtedly incomparable to the dry eschar in questions involving considerations of time.

Some twenty years since, when I held appointment under the Hudson's Bay Company, and possessed the sole medical charge of an extensive colony in the vicinity of Lake Winipeg, in North America, it became a duty to pay attention to the subject of vaccination, alarm having been excited, and the remembrance of the devastating influence of small-pox of some former period, in the same locality, having reasonably enough afforded occasion. I made application to the metropolitan vaccine establishments, and year after year obtained the usual supplies; but so great the distance intervening, and loss of time in obtaining such supplies, that I was foiled through decomposition in each succeeding effort. At length, application was made to some institution in Canada, and I was supplied with a scab carefully rolled in tin-foil, but without any instruction or advice in its use; whereupon I made a vertical section through the centre, obtained thence a few fine shavings, rubbed these up upon glass with a drop of cold water, and applied the same as in the ordinary mode of vaccination. I was delighted with a successful result, and was thus enabled to keep up my supply, having repeatedly tested the means and the retained efficacy of the eschar for three and six months; and these, not only abroad, but also since my return to this country, not unfrequently adopting similar practice with full confidence in its safety, full satisfaction in the efficacy, and fullest assurance in such measure as constituting a *ne plus ultra* where time and distance present the difficulties sought to be surmounted.

I am, Sir, your obliged servant,
William Hendry, M.R.C.S.E., &c.
Hull, July, 1852.

TREATMENT OF UNUNITED FRACTURE.

To the Editor of The Lancet.

Sir,—In your number of The Lancet, p. 383, you conclude your article on ununited fracture by quoting a case treated by Dr. Mott, of Philadelphia, by passing a silver wire through the ends of the bones after the points had been sawn off. A case of precisely a similar kind was published in The Lancet in 1850, and would have been an useful addition to your catalogue of cases, and strongly corroborative of the success of that mode of treating ununited fractures.

I think it may be questioned whether, in any cases, except where there is some constitutional taint, any kind of treatment is likely to produce union which has not a tendency to destroy or remove intervening substances or abnormal attachments. Excision of the ends of the bones can scarcely fail of the latter effect. Absorption of any intervening substances will necessarily be promoted by any force sufficient, acting directly upon it, whether it be vertical pressure, as caused by Mr. Amesbury's apparatus, or lateral pressure, as effected by tight bandaging, or Dieffenbach's plan of the ivory pegs. The seton has the same tendency by inducing free suppuration, and would be likely to succeed should it penetrate or pass sufficiently near the substance. Chloride of zinc, as well as other kinds of highly destructive chemical agents, the successes of which are known to the profession, possesses this common power in a marked degree.

As the above are many, if not most, of the means which have been found to succeed in such unfortunate cases, I beg to suggest to the profession for their consideration, the propriety of keeping in view that principle of treatment whenever such cases may present themselves. I should have said principles—viz., of removing intervening substances or abnormal attachments, if not both at the same time.

I am, Sir, your obedient servant,
John Russell.

LOSS OF THE HAIR.

To the Editor of The Lancet.

Sir,—A patient of mine is troubled with premature loss of hair, "alopecia diffusa," and has heard of some remedy being applied to the head, a mixture of sulphur and iodine, or something of that kind, with effect. Having had no experience with such a remedy, if it has been useful, perhaps some of your readers would be kind enough to state their experience, either with that or any other remedy they may have found useful, and the mode of application.

I am, Sir, yours truly,
Geo. Fearley, M.D., M.R.C.S. L. et E.
Grove-house, Dewsbury, 1852.

ON THE USE OF LEAD POWDER BY ACTORS.

To the Editor of The Lancet.

Sir,—In November, 1850, I was requested to visit a comedian, one of a strolling company. On visiting his quarters, I found him suffering from lead colic. I inquired as to his habits, mode of living, the water he drank, etc., etc., but could elicit no cause for his illness. Then I discovered he was clown to the company, when the murder came out; for on asking, "What do you whiten your face and neck with, when you perform?" he replied, "White lead." "Why?" "Because there is nothing else that will produce so good a white as it; and all clowns are very particular on that point." "How do you apply it? What do you mix it with?" "I do not mix it at all. I smear myself with lard—the less the better, take a muslin bag in which I have put the white lead, and dust my face and neck with it. It gives a beautiful white; and on it I paint my red and black devices." "Do you mix the red pigment with lead?" "No; I only use lead that I know of, to whiten my face, etc." "Well, you must give up its use; it is highly injurious, and is the cause of your present illness." "I cannot give it up, Sir; nothing else will make so good a white," said the clown. It was astonishing to see with what pertinacity he clung to the white lead, and to the necessity for his looking very white.

After the lapse of some days (during which we had many chats about the cause of his ailments, and he began to see what an injurious practice he had so long adopted,) he was sufficiently convalescent to resume his vocation, when I induced him to use the oxide of zinc, which I gave him for the purpose, in lieu of the oxide of lead, applying it after the same fashion. He was really delighted. It produced a better white. He had never heard of such stuff before.

The moral of this is, that probably there are many itinerant and other players equally unaware, with "Mr. Stanley," of the poisonous effect of daily and nightly dusting with lead powder, or that there is such a good substitute as oxide of zinc. The latter is certainly the most brilliant white, and its light specific gravity, compared with lead, makes it a cheaper application than lead, though per pound it is dearer.

I have heard that Grimaldi became prematurely enfeebled and paralytic. If so, might not the practice detailed above account for it? I am, &c., E. Lacy.

SIMPLE MODE OF

APPLYING PRESSURE IN CHRONIC ENLARGEMENT OF CERTAIN BONES, ETC.

To the Editor of The Lancet.

Sir,—I am induced to send you the following case, as it may probably afford a useful hint to others:—

M. C., a delicate little girl of three years old, was brought to me with swelling of the left knee-joint. On measurement, I found that it was three-quarters of an inch larger than the right. The swelling had commenced six weeks previously; had been slowly increasing; it was just beginning to be painful after exercise. The increased size was due to an enlargement of the head of the tibia and the condyles of the femur. Considering this to be a case more likely to be benefitted by steady pressure than by more severe remedies, I had recourse, at first, to strapping; but, finding this of no use, I directed the mother to procure a piece of thin vulcanized India-rubber cloth, which she was to shape to the knee, allowing an interval in front of about three-quarters of an inch. The edges were to be bound by a piece of thin leather, and a piece of wash-leather was to be placed as a tongue between the laced portion and the knee. Holes were to be made in the cloth behind the binding, and the whole was to be laced like ladies' stays. The elastic was to be worn during the day and night, or according as the patient was able to bear it. Exercise was not prohibited, and no medicine was ordered. I saw her again in ten days. The bandage had been worn for fourteen hours daily, and taken off at night. The knee was reduced a quarter of an inch in circumference.

In ten days she called again, complaining of pain and œdema of the leg, in the evening, from pressure. On removing the elastic, whose edges now overlapped, I found the knee restored to its normal size and shape. The child could run about without pain or inconvenience. I directed the disuse of the bandage, unless the swelling should return; and told the mother, that, though I could not promise that there would be no return of the complaint, I considered the child as cured.

It is unnecessary to make any long comments upon this case. The fact of a morbid deposit in bone being absorbed, or, I might almost say, a threatened white-swelling, cured in three weeks, without blisters, issues, or caustics, without confinement, or even complete rest, is sufficient to speak for itself. Of course, such a plan can only be adopted when there is no reason to believe that active inflammation or purulent deposits are present, and where there is no severe pain.

The only novelty in the idea is, probably, the kind of elastic adopted, which is superior to the elastic web, both on account of its cheapness and its smoothness.—I am, &c. Thomas Inman, M.D. Lond.

Medical Facts, News, Items, &c.

Epidemiological Society.—At the ordinary meeting of this Society, held on Monday, July, 25, 1852, at the house of the Medical and Chirurgical Society, Dr. Babington, president, in the chair, several new members were elected, and others proposed. A discussion then ensued on the two papers read in June,—the one, by Dr. Finch, on the Failure of Vaccination in Bengal; the other, by Mr. Stuart, on the Success of Vaccination in Bombay. Dr. James Bird, Dr. Babington, Dr. M'William, Dr. Seaton, Dr. Snow, and Mr. Marson, as also Mr. Dendy and other visiters, took part in the discussion, which was of a highly interesting character.

Mr. Hunt then read a paper "On the Prevailing Furunculoid Epidemic," consisting of an eruption of boils, carbuncles, whitlows, pustules, and superficial abscesses. The object of the author (who undertook the task at the special request of the president) was to call the attention of the Society to the existence of such an epidemic, and to show that it was sufficiently important to call for investigation. He first described the epidemic as he had seen it in his own practice; and then alluded to the historical notices of its existence to be found in the periodicals, and to the accounts which had reached him, in various ways, from all parts of the world, from which it appeared that it had occurred simultaneously in the four quarters of the globe. He had traced it to many towns and counties of England, both inland and on the coast,—to the Isle of Wight, to Scotland and Ireland, to France and Austria, to the East and West Indies, to the United States of America, and to the south of Africa. It appeared likewise that the epidemic, although it had spent its strength chiefly on the asthenic portion of society, had attacked also a few individuals of all classes; and that all kinds of eruptive diseases were showing a remarkable tendency to pustulation and suppuration of an asthenic character. the author had not been able to ascertain the proportion of the population affected; but, from the facts adduced, there appears no reason to believe that not much fewer than twenty per cent. were more or less affected with it. At the Western Dispensary for Diseases of the Skin, twenty-one per cent. were attacked—two per cent. with carbuncles, eight per cent. with boils, nine per cent. with pustules, two per cent. with subcutaneous abscesses. The onychian form of the disease had not presented itself so frequently of late. The author then endeavored to trace the progress of the disease, by the exhibition of tables showing the deaths from carbuncle in the Metropolitan Districts, extracted from the annual and weekly reports of the Registrar-General for the last twelve years, from which appeared the following very remarkable results:—

Deaths from Carbuncle in the Metropolitan Districts from 1840 *to Midsummer*, 1852.

1840, 41, 42, 43	average	8¼	per ann.
1844, 45, 46, 47	ditto	8	ditto.
1848, 49, 50, 51	ditto	18	ditto.
Last quarter of 1851, 9 deaths	rate	36	ditto.
1st quarter of 1852, 16 deaths	ditto	64	ditto.
2nd quarter of 1852, 5 deaths	ditto	20	ditto.

Single Years.

In	1846	were registered	3	deaths.
"	1847	"	15	"
"	1848	"	20	"
"	1849	"	15	"
"	1850	"	19	"
"	1851	"	19	"
"	1852	(six months)	21	"

Single Months, 1852.

In	January	were registered	8	deaths.
"	February	"	4	"
"	March	"	4	"
"	April	"	3	"
"	May	"	none	"
"	June	"	2	"

These tables show that the deaths from carbuncle have been doubled every four years since 1840, and hat the increase commenced rather suddenly, so early as the year 1847. The epidemic appears, therefore, to have existed in London four years, and to have arrived at its full height in January, 1852. Other diseases tending to pustulation and superficial suppuration were shown to have also prevailed in a most extraordinary degree. Thus the deaths from phlegmon were reported to have nearly trebled their usual number during the last few years; and the fatality from small pox and pustular diseases has likewise been nearly trebled of late; in the years 1840, 41, 42, and 43, having averaged 771 per annum, and in the last three months amounting to 472, or the rate of 1888 per annum. Mr. Hunt expressed his belief in the existence of some analogy between the two epidemics, which he could not attempt to explain. He concluded by suggesting a mode of fortifying the system from the invasion of the carbuncular cachexy.

A VOICE FROM THE LAST CENTURY.—In the year 1754, a London physician was sued and cast in damages, "for promising and undertaking, and not performing, his office as a man-midwife." The report of the case, as then published, is carelessly drawn up, and is now become scarce, so that few persons of the present day are acquainted with it; and a brief analysis of it will probably be not unacceptable to our readers.

A lady had engaged a midwife "of great experience and reputation" to attend her in labour. When the first symptoms came on, there was so much hæmorrhage as to alarm the midwife, who consequently requested the assistance of a medical practitioner, and a physician who had once before attended her was sent for. After the requisite examination, he confirmed the statement of the midwife. He said that it was a very dangerous case; that delivery could not be safely attempted then; "and therefore they must wait a more fovourable opportunity." He now said that he should return home, and although most earnestly pressed by the friends, the husband, and by the midwife, who "represented to him how necessary his presence was to the lady's preservation, he absolutely refused," and home he went, promising, however, to come again "the instant it should be thought necessary, and he should be sent for."

An increase of the dangerous symptoms soon took place, and the doctor was immediately sent for; but he was gone to bed, under a plea of being ill, and peremptorily refused to return. It was necessary, therefore, to send for another physician, who, seeing the dangerous condition of the lady, begged to have a consultation, and the advice of another physician being procured, the poor lady was artificially delivered of a dead child, and the flooding ceased; but the patient had already been so much reduced and exhausted, that she never recovered; and after lingering for three months, she died.

Had this unworthy member of our profession, after ascertaining the hazardous state of his patient, felt unequal to the task of taking upon himself the whole management of the case, it was his duty either to resign it at once into more able hands, or to obtain the assistance of some friendly coadjutor to aid and sanction his endeavours. Either of these courses would have been honourable; but nothing could justify the course he actually adopted. He knew the extreme danger in which the poor sufferer was placed, and in a most cowardly, disgraceful manner, deserted her at the utmost need.

Of the actual trial, few particulars are given; an attempt was made to show that the defendant was consulted and attended purely as a physician, not as a "man-midwife," and for this purpose two eminent members of the Royal College were called to speak of his skill and reputation as a physician; but they both gave a most decided opinion, and all the other witnesses agreed in the same, that under the circumstances, he ought on no account to have left the patient.

There is reason to fear that this was not the only instance of delinquency in this recreant's practice, for Smellie, in his third volume, mentions the case of a poor woman who died under similar circumstances; and though he withholds the name of the doctor, yet he says of him,—"In a little time after this occasion, he was, for neglecting a patient in the same circumstances, exposed, sued, and cast in a considerable sum for damages."

The damages given were, indeed, not merely *considerable*, but *enormous*—ONE THOUSAND POUNDS.

OBITUARY. — MR. HERBERT MAYO. — This well-known author and surgeon died, a few days since, in Germany. Mr. Mayo was formerly lecturer on anatomy and physiology at King's College, and surgeon to the Middlesex Hospital. Of late years, however, he forsook the legitimate path of his profession, and became a mesmerist and a hydropath, on both which subjects he wrote extensively. His papers in the late *Medical Gazette* on the subject of mesmerism, exceeded all bounds, and many of his friends were fearful, at the time, that his mind had become wrecked. He subsequently embraced hydropathy, and retired to practise this heresy into Germany. Whilst in sound mind Mr. Mayo was undoubtedly an able writer and original thinker, and his lectures on Anatomy and Physiology were remarkable for clearness and beauty of style. His practical abilities as surgeon were great, but certainly physiology was his forte. His work on Physiology, although now superseded by more modern productions, will always be remembered with pleasure by those who read it. Mr. Mayo was somewhat conceited, but withal an amiable man. He was deficient, however, to a remarkable extent, in worldly wisdom; as an instance of which it may be mentioned, that whilst lecturing on Physiology, at King's College, he actually became a candidate for the professorship of the same science at University College, vacant by the resignation of Dr. Jones Quain; and then was astonished to find that the council of King's College did not approve of his conduct.

MEDICAL MARTYRS.—A Scottish paper thus records the decease of Dr. Smith, last month:—"At 2 Shaw-place, Greenock, on the 18th inst., of fever, caught in the discharge of his professional duties, John Smith, M.D." And thus, perhaps, in the prime of life, after years spent in the performance of the duties of an arduous and too often unrewarded profession, has passed to his account, another unit of those men who devote their lives to relieve the ills to which suffering human nature is subjected, "of fever, caught in the discharge" of those duties; and the only monument to the memory of the hero is a newspaper paragraph; while warriors and statesmen have their monuments and equestrian and other statues in every city and town throughout the length and breadth of the land And yet true heroism and true courage are more displayed in the every-day occurrences of the professional life of the medical man, in combating the dire invasion of fever in its foulest and most horrible haunts, than were shown in the most dreadful battle ever fought. The name of the warrior is handed down to posterity; and generations yet unborn will speak of Napoleon, to whom the names of Dr. Smith and of thousands of others who have fallen victims to their endeavours to arrest the progress of plague and pestilence, will be totally unknown, or, if known, as utterly disregarded.

The Cholera in Germany.—According to the latest accounts from Germany, it would appear that the cholera prevails in Elbing and Dirschan, and in several villages and towns of the Elbing circle. But the returns are low in number, and it is hoped it will nowhere appear with such violence as in Warsaw and on the Polish frontier. The last return from Posen is of the 29th ult., when there were 72 persons attacked, of whom 23 died. A letter from Posen states that the Countess Stephanie Plater had just died suddenly at Warsaw, of cholera. Another letter, in alluding to the ravages of the cholera, states that the parts of Posen where the greatest number of deaths had occurred were those which were badly ventilated, and close to stagnant water. In one street thus situated, and which contained 1000 inhabitants, 300 had died. The garrison had suffered but slightly. The disease is officially reported as prevailing in five circles in Silesia, but not to an alarming extent, and no returns of the cases have been made. The *Augsburg Gazette* of the 28th ult. announces that, according to letters from Trebizond of the 3rd, the cholera had just broken out with great violence at Azerbardjan.—*Advertiser.*

St. Mary's Hospital.—Since the opening of this hospital with fifty beds, in May, 1851, the number of in-patients has been gradually increased to 150. The weekly Board having some time since resolved that this number of beds should be constantly maintained, the Council of the College of Surgeons, at their last meeting, after receiving the report of personal examination of the hospital, by Messrs. South and Luke, formally recognised St. Mary's as one of the general hospitals of the metropolis. In consequence of this recognition, the hospital will at once receive students to attend its medical and surgical practice. By the laws of the institution, provision is also made for the future establishment of an hospital medical school and medical collegiate establishment. The income of the hospital for the past year exceeded £6000.

Munificence.—We have great pleasure in recording that among several large charitable bequests left under the will of the late Miss Abigail Pratten, the following munificent sums have been bequeathed to medical charities, to be paid after the demise of the annuitants under the will:—The Brompton Hospital for the Cure of Consumption, £200; Lying-in Hospital, Lisson-grove, £100; Royal Sea-Bathing Infirmary, Margate, £100; North London University Hospital, £100; Bloomsbury Dispensary, £50; and to the St. Pancras General Dispensary, £50; making a total of £600.

Longevity of the English.—As an illustration of the advanced period of life which residents often attain in the British metropolis, Dr. Webster mentions in his recent report on the health of London, published in the *London Journal of Medicine* for August, that, some time ago, four private patients were under his professional care at the same period, whose united ages amounted to 365 years, the youngest being 87, while the oldest was in her 96th year; and what is also curious, three were females, and only one a male patient.

Medical Liberality.—Dr. Hayden has contributed £400 to the parent Board of Irish Manufacture.

Continuation of Cholera at Warsaw.—Such is the frightful spread of cholera, that Prince Poskietwich has left Warsaw, having previously ordered all the public schools to be closed. The *Augsburgh Gazette* states that this fearful disease has spread in the neighbouring villages, many people being seized with it in the fields, and having to be taken home. It is stated that, owing to the negligence and uncleanliness of the inhabitants, added to the total absence of preventive remedies, a very populous village has been reduced to seven survivors.

London Hospital.—During the month of August 1060 accident cases were treated, 212 of which were so violent that they were instantly admitted. In the same period, 170 in- and 869 out-patients, suffering from various other diseases, have been recipients of the benefits of this hospital, where 15,018 obtained medical and surgical advice, with medicine, since the commencement of the year.

Lunatic Asylums.—According to an official return just made of the expenditure of the County and Borough Lunatic Asylums in the United Kingdom, ending the 31st of December last, the receipts amounted to £236,724 4*s.* 2¾*d.*; the disbursements figured £207,017 18*s.* 6¼*d.*; leaving a balance of £33,584 3*s.* 8½*d.* with the treasurer, to whom is due £3877 18*s.*

Small-pox and Measles.—The last advices from Kingston, Jamaica, announce 5000 cases of small-pox and measles, many of them fatal. In consequence of this frightful spread of disease, an order has been issued prohibiting seamen landing. The weather is extremely hot, and for some time there has been no rain. The distress in the agricultural districts has increased the terror created by the disease.

Royal Westminster Ophthalmic Hospital.—The revenue of this institution, which has afforded during the year relief to 6000 poor persons, is so reduced, that although there are beds for thirty in-patients, only four can be admitted. Need more be said to induce the affluent and benevolent to subscribe towards its support.

Incurables, (France.)—The Minister of the Interior has addressed a letter to the different Prefects, directing them to provide accommodation for incurables in the several hospitals, towards whose support a certain sum is to be paid, either by the parties themselves or the Council-general.

Medical Men and Passports.—A lady, while travelling, having been seized with cholera at Ostrowo, on the confines of Poland, sent for a physician, who was refused permission to cross the boundary, as he had not a passport. The lady died from want of medical aid.

Medical Inspector of Corfu.—It is understood that Dr. Barry, Deputy Inspector-General, will not return to Corfu; but that Dr. Burrell, staff surgeon first class, now at Malta, will replace him.

Mortality amongst the Troops in China.—The 59th Regiment left Cork in June, 1849, for China, and since then has lost by death alone two officers and 229 men.

Surgeons for Australia.—A Liverpool paper states that surgeons are much wanted at Liverpool to proceed in emigrant vessels to Australia.

THE LANCET.

Journal of Medical, Surgical, and Chemical Science and Practice, Criticism, Literature and News.

MR. WAKLEY, M.P., EDITOR. J. HENRY BENNET, M.D., J. WAKLEY, JR., SUB-EDITORS.

IN TWO VOLUMES ANNUALLY.

VOL. II. NEW-YORK, NOVEMBER, 1852. No. 5.

Lectures
ON
LITHOTOMY AND LITHOTRITY.

(Delivered at St. Mary's Hospital.)

By WILLIAM COULSON, Esq.,

SURGEON TO THE HOSPITAL.

LECTURE III.

GENTLEMEN,—As I have already informed you, I propose devoting a few lectures to the important subject of the extraction of calculus from the bladder. It is so vast a question, and embraces such a variety of details, that you must permit me to enter on its examination at once without any preface. Let us commence with lithotrity, or that part of the subject with which you are probably less familiar. Here a few historical remarks may be interesting, for nothing is more curious or instructive than to follow the history of the mechanical destruction of stone through its successive epochs.

Lithotrity, in one sense of the term, is not a modern invention. It has been known, and occasionally practised, from time almost immemorial; but these isolated operations, as I shall presently show, detract nothing from the merit of the illustrious surgeon of modern days, to whom the honour of having erected it into a system incontestably belongs, and who may therefore be regarded, as he now universally is, the real inventor.

The germ of lithotrity may be found in the old idea of extracting calculi from the urethra without a cutting operation. From the urethra to the bladder there is but a single step, yet it required more than a thousand years to make this step, short and simple as it may now appear to you.

Urethral calculi were sometimes extracted whole, sometimes broken up, to facilitate their extraction. Hippocrates mentions a certain Ammon, of Alexandria, who thus broke up a calculus in his own person with a statuary's scissors, from which circumstance he was named the "Lithotomos." Colonel Martin, as you see, was not the first who operated in this way on himself.

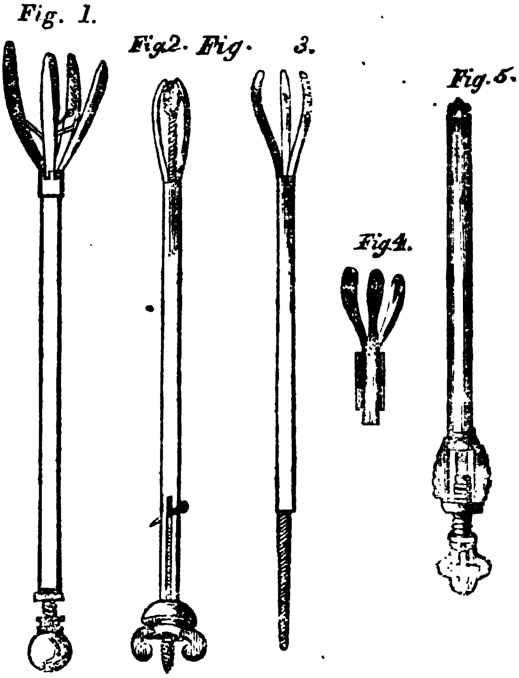


FIG. 1 is the quadrupulus vesicæ of Franco.—Figs. 2 and 3 represent the forceps of Hildanus, for the extraction of urethral calculi. Fig. 2 shows the instrument embracing a small calculus; fig. 3, the forceps.—Figs. 4 and 5 represent the ball-extractor of Alphonso Ferri. Fig. 4 shows the extremity of the three-bladed forceps; fig. 5, the instrument closed within the canula.

Albucasis, a Moorish surgeon, who lived in Spain at the latter end of the eleventh century, (1090,) describes the operation of perforating and breaking up urethral calculi. In the year 1561, Franco described a four-branched instrument, which he named quadrupulus vesicæ, for the same purpose; and analogous instruments, with four, three, or two branches, sometimes intended to perforate or crush, sometimes merely to extract, were invented by Fabricius Hildanus, Sanctorius, Paré, &c., and in modern times by Hunter, and Sir Astley Cooper. The greater part of the instruments prepared since the 16th century were probably borrowed from those invented by De la Croix and Alphonso Ferri for the extraction of bullets.

In this drawing of Ferri's instrument, which I show you, you will at once discover many of the elements of modern lithotriptic instruments—the external canula, the three-bladed forceps received into it, and the screw for working. The instrument of Hildanus also shows the fly screw, which has been claimed as a modern invention.

But the older surgeons did not confine their practice to the simple extraction of calculi from the urethra. It is certain that they not only sought to extract stones from the bladder itself, but perforated or crushed such calculi as were too large to find an exit through the natural passages.

The extraction of calculi from the bladder without breaking them up, was practised in Egypt from time immemorial: the French surgeons who accompanied Buonaparte in his Egyptian expedition saw the operation performed there, and it is probably practised in that country at the present day. But this would evidently apply to small calculi only. Was the operation of perforating and crushing larger calculi known to the older surgeons? Undoubtedly it was.

Albucasis, who died in the year 1105, must have been acquainted with the operation of lithotrity when he wrote the following passage:—"Accipiatur instrumentum subtile quod nominat Mashabra Rebilia, et suaviter intromittatur in virgam, et volve lapidem in medio vesicæ, et si fuerit mollis, frangitur et exibit."

From the context of Albucasis, however, it would appear that the operation of which he speaks referred to the relief of retention of urine produced by the impaction of a small calculus either in the neck of the bladder or in the urethra. In such cases, he says, "the calculus is to be pushed back into the bladder, and if it is friable it breaks up and is expelled. But if it be not expelled, the patient must be cut." It is impossible to ascertain the nature of the instrument to which Albucasis alludes, his Latin translator having preserved the original Arabic name, apparently from not understanding what it meant.

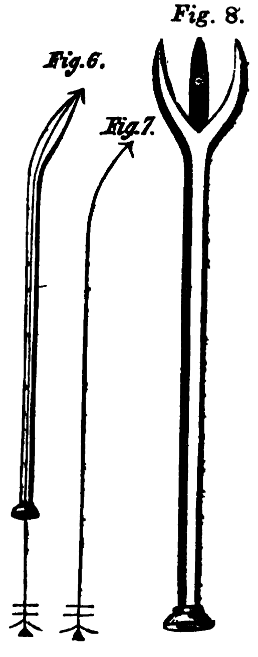
In the year 1506, Antonio Benevieni performed the operation of percussion, for the introduction of which, in modern times, we are indebted to Baron Heurteloup. The patient, however, was a female, and the stone appears to have been impacted in the neck of the bladder. Benevieni passed a hook behind the calculus, so as to fix it, and then struck the calculus with an iron rod, until by the repeated blows it was broken into pieces.

In 1533, Alexander Benedetti thus alludes to perforation—"Cum vero his præsidiis (dissoluentibus) lapis non comminuitur, nec ullo modo eximitur, curatio chirurgica adhibeatur, et per fistulam, priusquam humor profusus dolores levet, aliqui intus, sine plagâ, lapidem conterunt ferreis instrumentis, quod equidem tutum non invenimus."

Sanctorius, who lived in the early part of the 17th century, appears to have invented several instruments, drawings of which are before you, for perforating calculi.

Haller thus alludes to them in his "Bibliotheca Chirurgica"—"Catheterem delineat trifidum, per eum in grandiorem calculum specillum sagittatum immittit: eo, ut putat, calculum dividit, ut fragmenta inter specilli crura cadant et possint extrahi." But Haller adds, "meram speculationem puto."

This is an extremely curious passage. Haller evidently quoted Sanctorius from memory, for on referring to the original work of this latter author, you will find that the instrument of which I have shown you a drawing was solely intended for the extraction of small calculi from the bladder, and that the arrow-headed stilet merely served to expand the branches of the three-bladed forceps. The idea of perforating the calculus, and extracting its fragments, was a creation of Haller's own genius, which he attributes to Sanctorius, and calls "a pure speculation." Yet, one hundred years afterwards, this speculation was converted into a reality. It would hence appear, that the original idea of lithotrity, as a system, belonged to Haller, but that Haller attributed his own idea to another, and discarded it as a fancy.



Figs. 6, 7, 8—Sanctorius' instruments (1626) for the perforation and extraction of stone from the urethra and bladder. Fig. 6, the perforator closed. Fig. 7, the barbed stilet. Fig. 8, the forceps for extrasting from the bladder the calculus when perforated.

In 1671, Ciucci, an Italian surgeon, speaks of a "tenacula tricuspis," (as the most effectual mode of curing stone,) with which the calculus was seized and broken up into fragments.

In 1791, Thomassini established the possibility of breaking up small friable calculi in the bladder; and it is asserted that a Spanish surgeon named Rodriguez performed this operation at Malaga in the year 1800. The well-known facts of Colonel Martin and the Citeaux monk, I need merely allude to; the former delivered himself from calculus by filing the stone, the latter by percussion. Sir Philip Crampton mentions a fact long anterior to either of them: the history of an Irish gentleman, in 1559, who was cured of stone by some instruments passed into the bladder, and employed to break up the calculus.

These, gentlemen, are all isolated facts. It is impossible to determine from them the precise nature of the operation employed, or whether it was ever converted into a system. Besides, they were completely forgotten or unknown.

In 1813, M. Gruithuisen, a Bavarian surgeon, published two memoirs on lithotrity in the *Saltzburg Medico-Chirurgical Gazette*. These were remarkable productions in every respect; and if M. Gruithuisen did not discover lithotrity, we must at least acknowledge that he was very near doing so. If you look at the drawings of his instruments, you will find, 1stly, a straight canula, intended to pass into the bladder, and serve as a conductor for, 2ndly, a perforator, which was either lance-shaped or dentated; 3rdly, a wire for seizing and fixing the calculus; 4thly, a handle rapidly moved by a bow drill; 5thly, a branched forceps and a hook for the purpose of crushing fragments of stone when divided by the perforator.

Here, then, for the first time in the history of lithotrity, we find a whole and complete system, embracing all the essential parts of the operation, such as it is performed at the present day; and we may conclude that if M. Gruithuisen had possessed but a tithe of the perseverance displayed by M. Civiale, the honour of having discovered lithotrity would have belonged to Germany, not to France. It should, however, be observed that the operation of lithotrity could never have been performed with the apparatus invented by Gruithuisen. The wire could never seize a calculus, and the forceps, from its shape and construction, could have little, if any, crushing power. It does not appear that the instruments were ever tried on the dead body,—certainly not on the living; the project received little attention, and was soon forgotten, like those which had preceded it. Besides, it does not appear that M. Gruithuisen's proposal exercised any influence on the subsequent discoveries of Civiale, to whom it was entirely unknown, and it is quite obvious that it would have remained a barren speculation, perhaps for centuries, had not the genius of the French surgeon been directed to the same point, while his perseverance conducted him through a host of difficulties to a triumphant application of the principle.

The first idea of endeavouring to cure stone in the bladder without having recourse to the knife, seems to have presented itself to M. Civiale in the year 1817. He was then a medical student of very limited means, and employed, I believe, as an externe under Dupuytren. Having made a few experiments, and constructed some models in wood, he made an application to the French minister, in July, 1818, for pecuniary aid towards

Fig. 9.

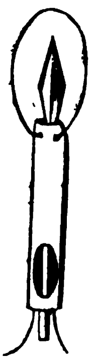


Fig. 10.

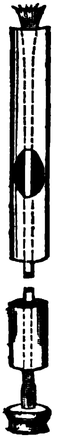
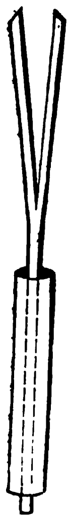


Fig. 11.



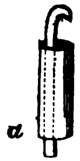


Fig. 12.

Figs. 9 and 10.—Gruithuisen's instruments for perforating and crushing calculi, (1812-1813.) Fig. 9, the canula, perforator, and wire-loop for fixing the calculus. Fig. 10, the canula, containing a toothed perforator.

Fig. 11.—Gruithuisen's forceps for crushing the calculus after it was perforated.

Fig. 12.—His hook for crushing fragments against the end of the canula.

Fig. 13.

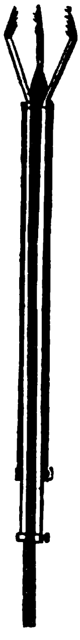


Fig. 14.

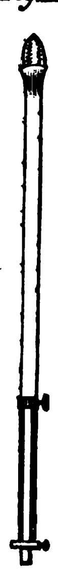


Fig. 15.

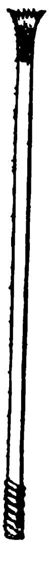
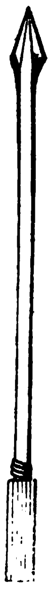


Fig. 16.



Figs. 13, 14, 15, 16.—M. Civiale's *original* instruments, as designed in his memoir of 1818. Fig. 13, a section of the six-bladed forceps for seizing the calculus; the lance-jointed stilet is seen in the middle. Fig. 14, the instrument when closed. Fig. 15, a dentated perforator. Fig. 16, a lance-shaped perforator.

constructing his instruments; and at the same time forwarded a short memoir, with drawings, entitled, "Some Details of a Lithotriptic." The drawings of three different instruments were attached to the memoir; but I need only notice one of them, as the other two were of little or no value. The instrument to which I now allude consisted of two hollow metallic tubes, (see drawings,) gliding on one another, the internal one supported at its vesical extremity; six elastic steel branches, slightly curved at the end, and solidly fixed to the inner tube. In the original drawing, these branches are shown as being joined to the tube by hinges; but this was an error of the artist, for the text distinctly states that they opened by their elasticity; nor is any allusion whatever made to hinges. The *lithotriteur* was a long steel rod, either lance-shaped or dentated—in fact, exactly like those of Gruithuisen—fixed in a handle, which, it would appear, was to have been worked with the fingers alone. There was also a strong button-screw at the external end of the instrument, to control the movements of the tubes on each other; but, as you perceive, neither the screw nor handle are depicted in the original drawing.

The Minister of the Interior sent, as is the custom, M. Civiale's memoir to the Faculty of Medicine, who appointed Barons Percy and Chaussier to report on it; but these gentlemen took no notice whatever of the poor student's invention. His memoir remained forgotten in the archives of the Faculty.

Had M. Civiale contended himself with the first project it is evident that he would now be entitled to even less merit than Gruithuisen; but he was supported by the firm conviction that the principle of lithotrity was a valuable one, and being endowed with great perseverance he continued his researches with the very limited means at his command. In 1819, he reduced the six branches of the forceps to four, and in 1820, to three; in the same year, also, he added a bow drill, and made several other improvements of minor importance. With these improved instruments numerous experiments were publicly made during the early part of the year 1822, at the Hospital of La Pitié, and in the dissecting rooms of the Faculty. Many young men, who subsequently distinguished themselves, were present at all these experiments; and it is not surely going too far to imagine that M. Amussat and M. Leroy had become acquainted with their object, if not with the means employed to attain it. We thus find M. Civiale engaged since the year 1818, in successively improving his original instruments, and in making experiments with them on the dead body.

In the announcement of the principle, he was closely followed by Mr. Elderton, who published, in the April number of the *Edinburgh Medical and Surgical Journal*, 1819, a proposal for attacking calculi with a curved, two-branched instrument and a perforator. The invention of Mr. Elderton was considered at the time a mere speculation, and even passed over without attracting any attention whatever.

Thus, gentlemen, the idea of getting rid of urinary calculi by mechanical means, and without operation, presented itself in the early part of the present century, and about the same time, to a German, a French, and an English surgeon: to Gruithuisen in 1813, to Civiale in 1818, to Elderton in 1819. For two out of the three, the idea remained unproductive; the French surgeon had the merit of converting the theory into a practice. We left him in the early part of 1822, experimenting at the Ecole Pratique, attacking the hardest stones, and breaking up those as large as a small hen's egg, after five or six attempts.

Such was the history of lithotrity when Mr. Amussat, in April, 1822, described in a few lines an instrument which he had invented for crushing stone. This was a strong, two-bladed forceps, acting laterally, concealed in a canula, and worked by a lever.

Fig. 17.

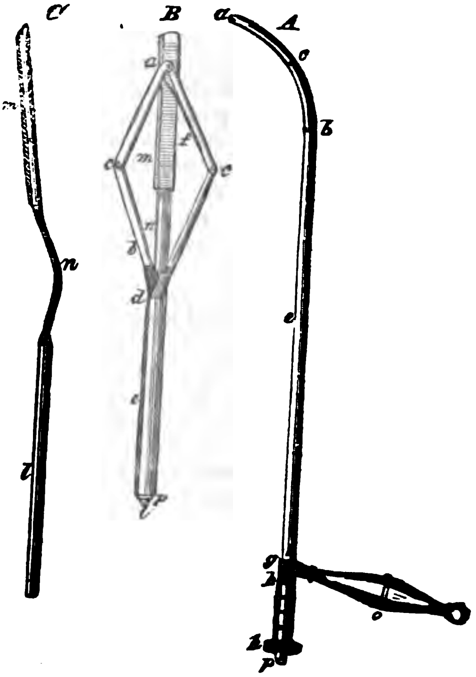


Fig. 17.—Mr. Elderton's instrument for crushing calculi, (1819.) That part which forms the curve, (*a*, *b*, fig. *A*) consists of two blades, (*c*, *c*, fig. *B*,) placed laterally to each other, and which, when in contact, present a solid, round form, (*c*. fig. *A*) about the size of a large bougie. At that extremity of the curve answering to the point of the catheter (*a*,) the blades are connected by a joint; one blade being received within the other, and presenting this united and uniform smooth point. At an equal distance (*c*, fig. *A*,) between the commencement of the curve (*b*,) and its extremity (*a*,) a second joint connects the other half (*c*, *b*,) of the same side. This structure is common to both the right and left blade. At the commencement of the curve (*b*,) there is another joint (*d*,) uniting the two blades, which are here fixed to a hollow metallic tube, made to slide readily within an outer canula, (*b*, *g*, fig. *A*.) A small steel spring, (*f*, fig. *B*,) placed within the blades, at their extreme point, expands them, and they then present an opening of an ovate shape, (*a*, *c*, *b*, *c*, fig. *B*.) The blades may be regularly and firmly closed, by simply drawing the inner tube within the outer one, while by pushing down the second tube, the blades may be expanded as before. When thus expanded, they constitute a pair of forceps (*c*, *c*, fig. *B*,) well adapted, from their shape, capacity, and strength with which the blades may be closed, to grasp, and hold firmly, a moderately-sized calculus.

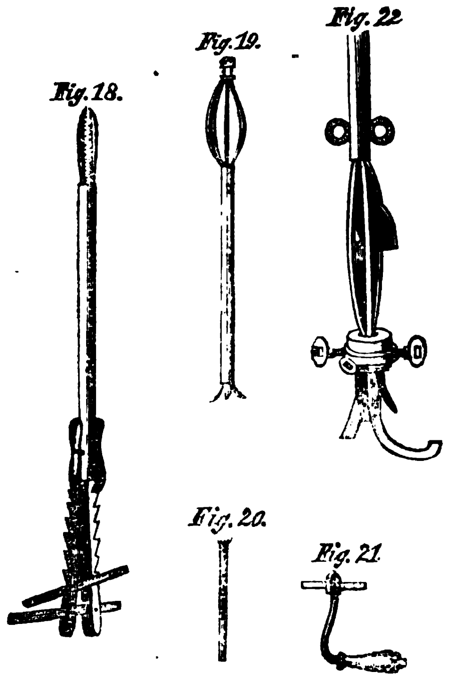
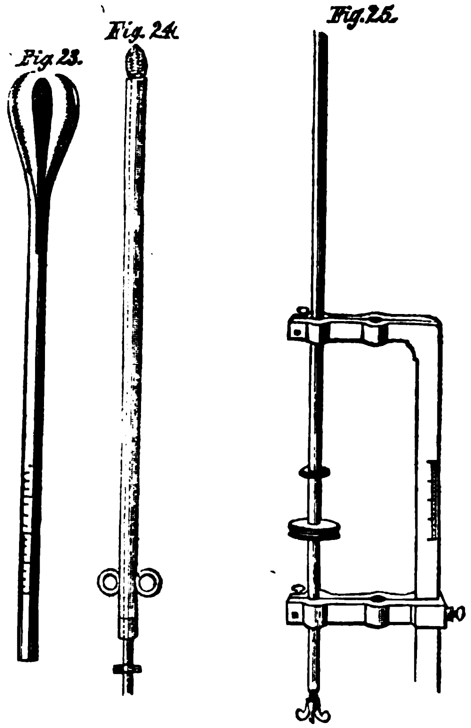


Fig. 18—M. Amussat's crushing forceps, (April, 1822.) Figs. 19, 20, 21, 22, M. Leroy d'Etiolle's perforator, (June, 1822) Fig. 19, the vesical end, showing the watch-springs expanded. Fig. 20, the dentated perforator. Fig. 21. The handle to work the perforator. Fig. 22. The external extremity, showing the springs fixed by screws.

He was soon followed by M. Leroy, now better known as M. Leroy d'Etiolles. In June 1822, M. Leroy produced his instrument. An outer canula of silver enclosed an inner one, which latter again enclosed four long watch-springs. These were passed up along the inner canula, and formed beyond its vesical extremity a kind of net, in which it was proposed to fix the calculus. Several kinds of perforators were employed, and the handle of the perforator was turned by a bow drill. At the distal extremity, the springs which represent the blades of M. Civiale's forceps were fixed each by a screw.

A commission was appointed by the Academy of Medicine, in July, 1822, to examine these instruments. M. Amussat's broke; that of M. Leroy seems to have worked better, although it is evident, from its construction, that it could never hold a permanent place amongst lithotriptic apparatus; indeed, M. Leroy abandoned it at once, and in April, 1823, he produced a much better instrument, a drawing of which I show you. It is, as you see, an imitation of Alphonso Ferri's ball-extractor. The forceps blades are exactly the same; the tube is merely hollowed, instead of being solid, to receive the perforator which M. Leroy added.

The appearance of this latter instrument, and the claims which M. Leroy set up on it, drew M. Civiale from the silence which he had hitherto observed; for it is necessary to remark, that up to May, 1823, he had not published a single line on lithotrity. To the short work on "Retention of Urine, Urinary Calculi, and the possibility of destroying Calculi in the Bladder without Operation," he appended the original memoir of 1818, with the original drawings; and also indicated, in a very summary manner, the improvements which he had made since 1818.



Figs. 23, 24, 25.—M. Leroy's improved instruments, (April, 1823.) Fig. 23, the forceps. Fig. 24, the instrument closed. Fig. 25, the handle for holding the drill, mounted with a pulley for a drill bow.

It is not easy to understand why M. Civiale did not describe his improved apparatus in a clearer manner. Perhaps he did not think it prudent to communicate all he knew to professional men, who had already evinced so strong a determination to defraud him of his due. However this may be, we are compelled to take for granted the conclusions of Baron Percy's report in 1824. In January of that year, M. Civiale addressed to the Institute a memoir, which was immediately referred to Barons Percy and Chaussier, the same reporters who had been appointed by the Faculty of Medicine, in 1818. This time, M. Civiale was more fortunate. On the 13th of January, he performed his first operation in the presence of the commissioners, and the patient was freed from his stone in two sittings. In the second patient operated on, (February 4,) the stone was removed in four sittings. The third patient was cured with equal expedition on the 4th of March. Such brilliant and unexpected success attracted immediate attention. On the 22nd of March, the reporters, having the original documents of 1818 in their possession, and examined the various modifications of M. Civiale, together with the proofs which he offered, sent in a report, which establishes M. Civiale's right, not only to the discovery of the principle, but of the means by which it has been carried into practice. Envious men and rivals have endeavoured from time to time to attack the validity of this report; but if two of the most distinguished surgeons in France, totally disinterested, and having all the documents &c. at their command, arrived at a certain conclusion, I cannot see why others, deprived of the means of judging, should presume to overthrow it.

M. Civiale, then, is to be regarded as the discoverer of lithotrity. I shall insist no further on this point, nor on the different modifications which his instruments have undergone; for although lithotrity as a system was originally established with straight instruments, and on the principle of perforation, the system now almost universally adopted rests on curved instruments and the principle of crushing.

Lithotrity in its true sense is made up of two principal parts—seizing the stone in the bladder, and destroying the stone. This latter part may be effected by perforation, by percussion, or by crushing; and the predominance of any of these three modes of attacking the stone constitutes a peculiar method, although in particular instances they may be combined together with advantage.

Fig. 26.

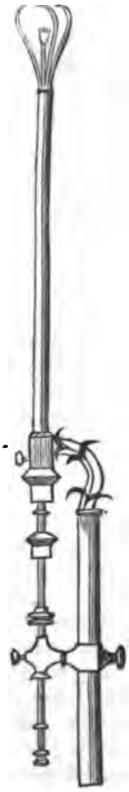


Fig. 27.

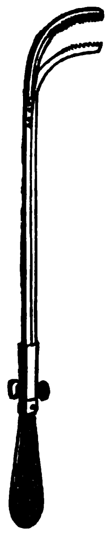


Fig. 26.—M. Civiale's improved instruments, (1824.)
Fig. 27.—Mr. Weiss's original instrument, (1824.)

I have already noticed the attempts made by the older surgeons to crush stone in the bladder. According to M. Bellinaye, an English surgeon named Stoddart had a sliding instrument constructed in 1800, for the purpose of crushing calculi. In 1813, Gruithuisen produced his forceps, but the blades, as I have before remarked, acted laterally, and all the urethral forceps previous to the year 1823 were constructed on the same defective principle. M. Civiale used a *brise-pierre* in 1821. It was worked with a rack and pinion, but the branches were moveable, and acted laterally. In 1822, M. Amussat published an account of his crushing forceps, to which I have already alluded. The first crushing instrument of any value—that is to say, one in which the blades are placed one over the other, and have a gliding movement forwards—was, as far as I can ascertain, manufactured by Mr. Weiss in the year 1824. It is essentially the same as the improved percussor of Heurteloup, with this difference only, that it acts by crushing with a screw instead of percussion.

I should perhaps have observed to you that M. Civiale always used more or less crushing when the calculus was perforated and reduced into fragments; he then crushed these with the blades of his three-branched forceps against the extremity of the canula. This was a very imperfect method.

Dr. Haygarth comes next. In 1825 he invented a sliding instrument, for the purpose of extracting small calculi from the bladder, and, at the suggestion of Mr. Hodgson, a screw was attached to this instrument, that it might be employed for crushing. Mr. Hodgson tried this instrument upon a patient in the Birmingham Hospital in 1825. In the same year also a French instrument-maker, named Retoré, invented a sliding instrument, a description of which M. Leroy gave

Fig. 28.

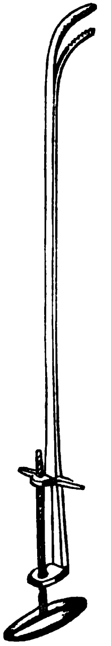


Fig. 29

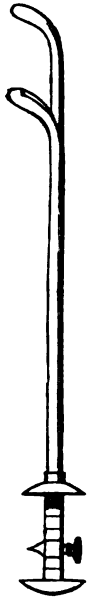


Fig. 28.—Dr. Haygarth's instrument for crushing stone, (1825.)
Fig. 29.—Retoré's instrument for measuring the diameter of calculi, (1825.)

in 1827. The branches are similar to those of Weiss and Haygarth, but it would seem that the female branch was drawn backwards on the male.

The instrumental portion of the crushing system unquestionably originated in England, for we do not find crushing as a system alluded to in any of the French publications previous to 1829. To render this system available, the blades of the forceps must be placed in the same plane, one behind the other; the motion must be sliding from behind forwards, and the male piece should glide along a hollowed catheter. These three conditions were first obtained in the English instruments, and the system of crushing thus rendered capable of being executed.

Fig. 30.

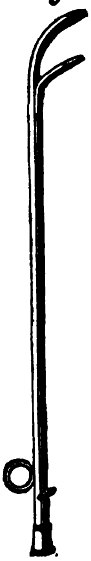


Fig. 31.

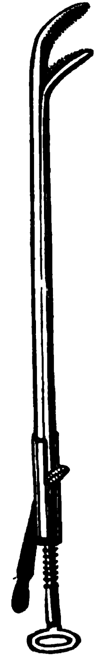


Fig. 30—Mr. Weiss's catheter-forceps.
Fig. 31.—Mr. Weiss's screw-scoop.

In 1831 Professor Jacobson, of Copenhagen, presented his articulated crushing instrument to the Institute; several successful operations were performed with it, but it is now abandoned. The principle was altogether different to that of the sliding instruments at present in use.

Indeed, true crushing does not seem to take date as a complete system until after the production of Baron Heurteloup's percussor in 1832. On employing that instrument, surgeons soon perceived that it might be applied to crush the stone. Some, as M. Tonsay in France, modified it, so as to render it available for percussion or crushing; while others, especially our English surgeons, returning to the principle of Mr. Weiss, abandoned the percussor, and substituted in its place, crushing, either by pressure with the hand alone, or with a screw, or fly-screw, &c.

The intuitive genius of Dupuytren was one of the first to seize the advantages of pressure. Soon after the appearance of Baron Heurteloup's percussor, we find Dupuytren writing to him the following passage:—“If you could discover a mode of substituting for percussion a force of pressure which would enable us to do away with your bed, &c., I should at once advise the commission to award you the grand prize.”

Fig. 32.

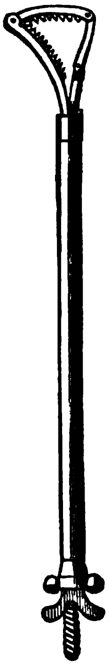


Fig. 33.

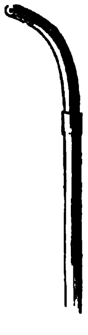


Fig. 32.—Professor Jacobson's instruments, (1831.
Fig. 33.—Shows instrument closed.

As for percussion, Baron Heurteloup is unquestionably entitled to the merit of having, if not discovered, at least introduced and subsequently established that system, which led to the still better one now adopted, of crushing with sliding instruments. And here I must enter into a few details which enable me to do justice to English surgery on a point that has been forgotten or intentionally overlooked.

Baron Heurteloup's original instrument was extremely imperfect; and I have no hesitation in affirming, that, without the essential modification which it subsequently received, it could never have held its place, and the system of percussion must have been abandoned as impracticable.

Here is a drawing taken from the original instrument made by Weiss, and which Baron Heurteloup presented to the Westminster Society. It is composed of two side pieces, with a thin central plate of steel, representing the male branch. The side pieces are curved at their extremities, and are united to the central piece by the pressure of a few screws. Near the curve of the male piece is a short longitudinal slit, through which a rivet passes from side to side, and this is the only solid point of junction. This rivet limits the movement of the branches. From the section of the instrument you will perceive that the side-pieces, which represent the female branch, do not meet either above or below, but are separated by the thickness of the male branch. The sliding movement is altogether lateral. Now let us consider for a moment what takes place—nay, what actually did occur in Colonel Rankin's case—with this instrument. When the blades embrace a calculus, and pressure or percussion is employed, at that part of the slit in the male branch which comes in contact with the rivet, a tilting effect is produced; the rivet acts as the point d'appui of a lever, and the extremity of the male forceps is more and more thrown up according to the force employed. In the case alluded to, it was bent upwards over the arch of the pubes. This is the inevitable effect of the want of solidity, produced by the way in which the branches slide laterally, and by the lever action of the connecting rivet.

Fig.34.

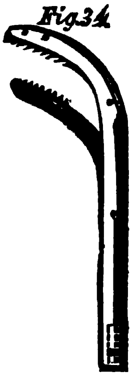


Fig.35.

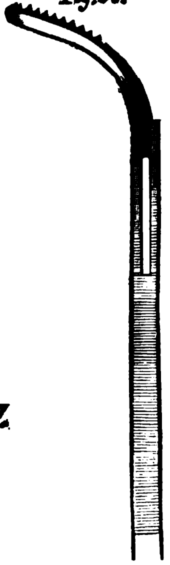


Fig.36

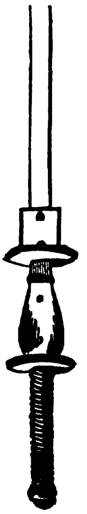


Fig.37.

Baron Heurteloup's Original Instrument for Percussion.

Fig. 34.—The male and female branches, without handle and opened. The dotted lines show the slit in the male branch.
Fig. 35.—The vesical extremity of the male branch; the slit in the blade enables it to be drawn back.
Fig. 36.—The handle and portion of instrument.
Fig. 37.- Perpendicular section, showing the central or male branch, and the external or female side-pieces.

These fatal defects were soon corrected by Dr. Costello who modified the instrument in the way I now show you.

Fig.39

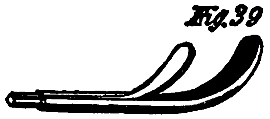


Fig. 39.—Dr. Costello's modification of the original percussor.

The female branch is a hollow catheter, with a slit of a triangular shape along the upper part; and the male branch is a solid catheter-shaped piece of steel, fitting exactly into the former, with all the points of which it is in contact, except along the upper surface. Hence, from the solid manner in which the two branches are united while they slide, they admit of any degree of pressure being made, without danger of forcing the joints or branches of the instrument.

It is curious to observe how the progress of lithotrity in this direction was retarded by what we might call an accident. In the year 1824, Mr. Weiss demonstrated the power of his screw instrument to Sir Benjamin Brodie. The screw acted with so much power on a hard calculus, that it was feared the bladder might be injured by the force with which the fragments would be propelled against its walls; and to obviate such an occurrence this surgeon suggested the addition of a saw.

Fig. 40

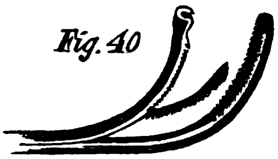


Fig. 40.—Mr. Weiss's instrument for sawing stones in the bladder, (1825.)

We now know that such fear is chimerical, though it was quite natural in 1824, for at this time the injection of the bladder with water, previous to operation, was not insisted upon; hence the fear of damaging the coats of the bladder. The French surgeons soon after this advised the injection of water prior to operating, since which this practice has been universally adopted. The principle of crushing by means of the screw, however, was rejected for the time; no trials were made on the living body, and it was not until 1832, when the use of Baron Heurteloup's percussor, water having been previously injected, had refuted the theory of "danger from explosion of fragments," that Mr. Weiss's principle began to attract attention, and his instrument became the starting point of all those subsequently employed.

The position of the patient in this operation is a matter of importance, and Heurteloup used to place his patients on a bed, a representation of which I now give. Although this cumbersome apparatus is never used at the present day, I must for history's sake say a few words about it. The drawing I now show you gives a good idea of all the main points of the bed, which is composed of a rectangular couch. On the upright rod, which M. Heurteloup calls his "fixed point," is a wedge to fix this branch solidly, and a grooved head, with a screw at the upper end of the branch, to fix the percussor. The object is to hold the percussor so steadily, that when the male branch is struck with the hammer, no movement of any other portion except the male branch shall take place. Anteriorly there are two pieces of wood, having at their extremities two slippers for the patient's feet. These can be lengthened or shortened at pleasure, to suit the height of the patient. In front there is a cross piece of wood, very thick, uniting the two triangles together. In this is seen a mortice for the small vice to play in, which holds the instrument during its action on the stone. This bed can be lowered, if required, to an angle of 45°, a strap being passed behind the neck and before the shoulders, and attached to a buckle on each side of the bed, so as to prevent the patient slipping off.

England may, and you see, justly, claim the principal part in the crushing system. The oval slit in the side or back of the female forceps, for the discharge of the detritus, was, I believe, invented by the late Mr. Oldham, a gentleman attached to the Bank of Ireland; while Mr. L'Estrange, of Dublin, claims the merit of having first applied a wire stilet, for the purpose of removing the detritus. Mr. L'Estrange also claims the honour of having been the first who applied the principle of the screw as a means of crushing calculi in the bladder: but with every desire to do justice to our Irish brethren, I cannot see on what this claim is founded. If Mr. L'Estrange's invention bears date from July, 1834, I have merely to remark that the screw was employed by Weiss in 1824, by Haygarth in 1825, again by Weiss in 1825, by Retoré in 1825, and by numerous French surgeons in 1833. An English instrument-maker on the Place de l'Ecole de Médecine, known as Sir Henry, (probably because he was a knight of the legion of honour,) had applied the screw for crushing long before 1834. It is but right, however, to observe that the screw broke the blades, on the first trial made with it at the Hôtel Dieu, in 1828.

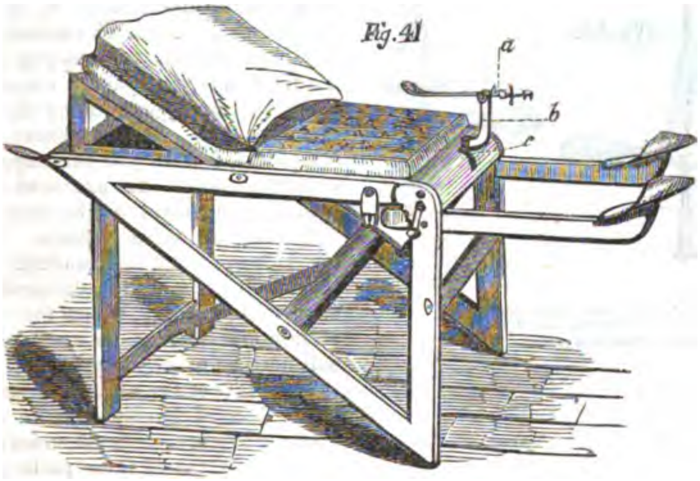


FIG. 41.—Baron Heurteloup's bed. *a*. The percussor, fixed by a screw in the upright rod, *b*. *b*. the upright rod, or "fixed point," which is itself firmly fixed to the framework of the couch by a wedge, *c*, driven in.

Since 1834 many changes have been made in the details of various parts of lithotritic instruments, but none affect the principle on which they work. The blade of the female branch has been made wider and deeper, to receive the detritus; the screw has been replaced by the rack and pinion: the latter furnished with a round handle, as in Charrière's instrument; or with a T-shaped one, as in the English, to give additional force. To Mr. Fergusson we are indebted for the application of the rack-and-pinion system, which he introduced in 1834. It is unnecessary for me to notice all these improvements, as they have been called, for almost every surgeon who has occupied himself with lithotrity appears to have thought it incumbent on him to make some change in the apparatus—occasionally for the better, often for the worse.

The instruments generally used at the present day for performing lithotrity are, the common screw one, the rack-and-pinion instrument described by Mr. Fergusson, and Charrière's last instrument, which likewise acts through a rack and pinion, but differs from the former in the shape of the handle.

Having thus comprised, in as brief a space as possible, the principal facts connected with the history of lithotrity, I hasten to its practical application. I shall at another time endeavour to explain to you in what cases lithotrity is to be preferred to lithotomy, for you are not to conclude that all cases of calculus in the bladder admit of being cured by the new operation. For the present, let us suppose that a case of stone suitable for the employment of lithotrity presents itself. How are you to proceed? What are the successive steps of the operation?

Stone in the bladder, as you are fully aware, is almost invariably attended by more or less severe derangement of the genito-urinary organs or of the general health. It is important, before proceeding to the operation, to remove these complications as far as possible; and hence what has been termed the preparatory treatment. I do not now mean to say that you are to select your patients in such a manner as to operate only on those who are free from any complication. This would be impossible in hospital practice, and, moreover, would condemn many patients to perpetual suffering for the mere sake of enhancing your own reputation and appearing as a successful operator. What I mean is, that you must, by preparatory treatment, remove all such local or general disorders as are likely to exercise any dangerous influence on the result of the operation.

Whenever the calculus is small, the bladder healthy, and the urinary passages show little or

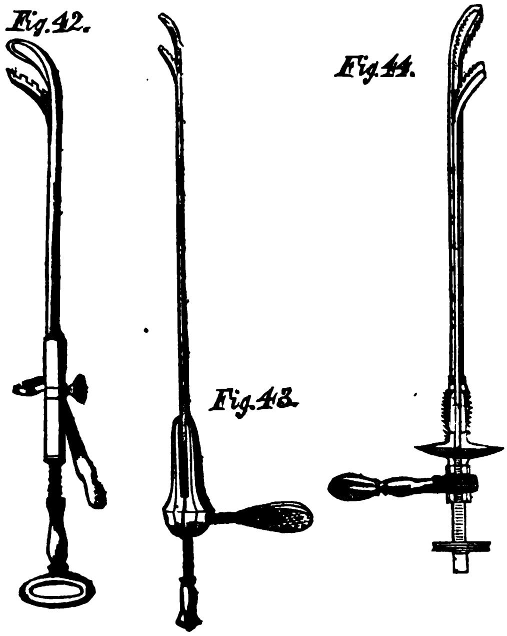


Fig. 42.—Weiss's latest improved lithotrite.
Fig. 43.—Fergusson's rack and pinion.
Fig. 44.—Charrière's rack and pinion.

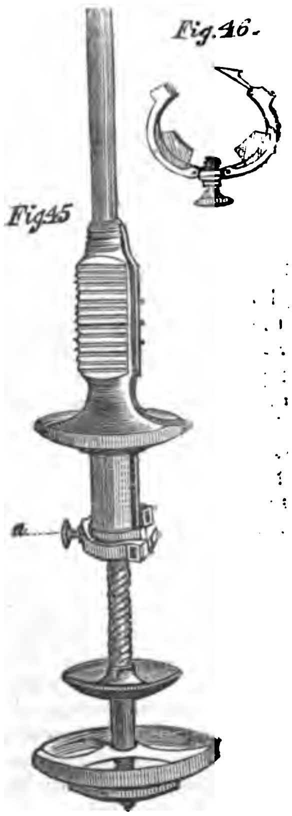


Fig. 45.—M. Civiale's latest instrument for crushing with the hand or the screw, or for employing percussion.
Fig 46 —The jointed catch, which is shown *in situ* on the instrument, fig. 45 *a*.

no signs of irritability, the patient is in the most favourable state, and preparatory treatment need not occupy your attention. But such cases are not very frequent. Patients seldom present themselves to you, especially with the idea of undergoing an operation for stone, until the urinary organs, and subsequently the general health, have more or less suffered. Here the patient must be carefully examined, and all unfavourable symptoms removed, or at least alleviated as far as possible, before you think of operating. The digestive organs often suffer in cases of stone. Endeavour to correct this derangement, and improve the condition of the intestinal secretions. Where the patient is much enfeebled, tonics should be administered; if, on the other hand, the circulation be much excited, general or local bleeding is indicated; but you must be cautious not to reduce your patient too much, nor to waste valuable time by continuing the preparatory system too long. If you relieve the most urgent symptoms, it is all you can expect to do in unfavourable cases. An excessive disposition of the bladder to contract on the stone should be combated by the use of opiates. The condition of the kidneys must be examined with the greatest care, for they are often diseased in long-standing cases of calculus. When the symptoms are uncertain and obscure, an examination of the urine will here be of great assistance.

The state of the urethra, prostate, and bladder, must, I need hardly say, be ascertained, and, above all things, we must endeavour to determine whether disease of these parts has given rise to the secretion of pus. The existence of purulent deposit in the urethra, prostate, bladder, and kidneys, is, according to my experience, one of the most unfavourable complications which can present itself, not only with respect to lithotrity, but any other operation on the genito-urinary organs. The pre-existence of such abscess is a powerful determining cause of purulent infection, and hence I would lay down the rule that every effort should be made to remove such a complication before we think of operating for stone in the bladder; and this remark applies to lithotomy just as well as to lithotrity.

As part of the local preparatory treatment, M. Civiale insists much on the propriety of introducing a soft bougie for a few days, and during a few minutes at each time, so as to accustom the urethra to the contact of a foreign body, and diminish its irritability. He never goes beyond the natural calibre of the urethra, and rejects dilatation of that canal.

Other surgeons, however, employ flexible sounds, the calibre of which is gradually increased until a certain degree of dilatation ensues; but I am of opinion that you had better leave your patient as tranquil as possible until the appointed time for operating arrives. The urethra, like other parts, will bear irritation to a certain extent only, and it never can become habituated to much violence.

The next step may be considered as preparatory also, for it consists in exploring the bladder.

A great deal has been said, by the opponents of lithotrity, on the inutility and danger of these preliminary explorations; but they are indispensable, unless, indeed, you are content to go to work completely in the dark. They are somewhat analogous to the usual operation of sounding previous to lithotomy; the proceeding, however, is somewhat different, for more precise information is required; or, perhaps I should rather say, that lithotritists are more careful in ascertaining every particular connected with the state of the bladder, the size of the stone, &c., than lithotomists commonly are. Remember that you have to work for a considerable time with a steel instrument, on perhaps a hard body, in the interior of a small, contractile, and highly sensitive cavity. It is therefore indispensable to obtain some idea of the cavity and contractile power of the bladder before you proceed to break up a stone in this organ. A moderately sized sound, with a small curve, (this latter circumstance is essential,) is introduced into the bladder, and, being rotated, conveys a knowledge of its capacity, while the manner in which the urine escapes will enable you to form some estimate of the contractibility of the organ. Should the bladder be extremely irritable, or, on the contrary, in a state of atony, the operation must be adjourned.

Having thus ascertained that the bladder is in a condition to bear further exploration, you now continue your examination. When the bladder is contracted the flow of urine must be prevented, and the point of the sound should be directed at once downwards towards the rectum, where the stone is most likely to be found, and the conditions of which part of the bladder, from its relation to the prostate, are most important to be known.

The most experienced surgeons have, from time to time, failed to detect the presence of a stone in the bladder by the usual method of sounding. In doubtful cases of this kind M. Civiale advises us to inject some fluid into the bladder, and to repeat the injections at short intervals, so as to vary the capacity, keeping it at one time full and the next moment empty; and in this way the bladder is excited to contract, its form and capacity are made to change, and it rarely happens that, as the walls of the bladder close round the end of the instrument and the calculus, the latter is not placed in contact with the former.

Certain diseases of the prostate may cause such a depression of the bladder behind the gland, as to render it impossible to discover the stone by the ordinary method of sounding; and the same result may arise from fungous tumours, &c., at the neck of the bladder. In these difficult cases the curve of the sound must be increased, and if this fail, you must have recourse to the lithotrite, which you are to use as a sound. The small size of the calculus has always been an obstacle to its detection with the common sound. If you meet with a case of this kind you must inject two or three ounces of fluid; next introduce the lithotrite, and open its blades from time to time, when the calculus is usually seized. Having seized it between the blades of the instrument, you next endeavour to ascertain its size: but this can be done only approximatively, for when the calculus is large, or of an oval form, it is quite impossible to measure its size with any degree of accuracy.

These various points, gentlemen, will be of great assistance to you in the operation which is subsequently to be performed. If we examine the practice of the most successful lithotritist of the present day—one who has performed more than 600 operations—we can hardly attribute his unexampled success to any other cause than the great attention he bestows on these preparatory arrangements. Many surgeons exceed him in manual dexterity, but none bestow so much care on the medical and accessory points of each case; and hence, I believe, the success of his practice.

On the position of the patient a few words only need be said. The patient is placed on a bed or couch with the pelvis slightly raised, so as to bring the most depending part of the bladder on a line with the internal orifice of the urethra. The legs are to be separated; the thighs slightly flexed; the surgeon stands on the right side of the patient. Having drawn off the urine with a catheter, he next proceeds to inject slowly some tepid water, continuing until the patient experiences a desire to evacuate it; the quantity required generally varies from five to ten ounces. If the fluid be expelled the injection must be repeated, for you should never think of attempting to operate when the bladder is empty. In some cases the bladder, as M. Civiale observes, is thickened and extremely irritable, tending to eject the smallest quantities of the fluid introduced. Here the injection must be conducted with extreme slowness—a small quantity at a time only being thrown in—and the patient allowed to repose between each injection; or the urine may be allowed to accumulate naturally in the bladder. If the irritability continues, you must cease your attempts for the moment, and adopt other means, as leeching, hip-baths, opiate clysters, &c. Chloroform has been tried in some cases of this kind, but without effect, the contractions of the bladder remaining undiminished, though the patient was completely insensible.

The instruments employed for injecting the bladder are a large-sized silver catheter with a stop-cock, and a metallic syringe, capable of holding half a pint and of being accurately fitted to the catheter.

We now arrive at the introduction of the instrument. The early ones, as I remarked before, were all perfectly straight, for curved instruments were not introduced into use until 1831 or 1832. Still you must remember that the curve of the lithotrite differs considerably from that of the ordinary catheter. The elbow, as you see, is very abrupt, the ascending part is much shorter, and in many instruments the forceps portion is much flattened, to give solidity to the branches. In introducing the instrument the abruptness of the curve must not be forgotten; and the principal point you have to attend to is to keep this curved portion constantly in the direction of the canal, especially while the instrument is passing under the arch of the pubes and through the neck of the bladder. Proceed, therefore, with the utmost gentleness, feeling your way as you go along. When you arrive at the bulbous portion of the urethra, the penis and handle of the instrument should be brought to a right angle with the body of the patient, by which you bring the curve of the instrument under the pubic arch. This done, you slowly depress the handle, advancing it at the same time until the bladder is reached. The amount of depression will depend on the curve of the instrument you use; the shorter the curve, the less you need depress, but the principle to be followed must guide you; that is to say, you must endeavour to make the curve of the lithotrite follow the natural curve of the urethra.

Fig. 47.

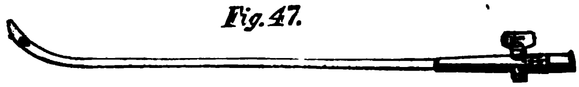


Fig. 48.

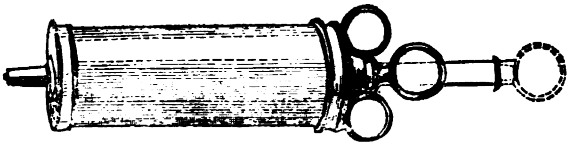


Fig. 47.—Catheter. Fig. 48.—Syringe.

There is seldom any difficulty in passing the instrument, at least in ordinary cases. When the prostatic portion of the urethra is healthy, the lithotrite, such as we now use, passes readily enough, but if there be any tumefaction of this gland, you must depress the handle of the instrument proportionately, so as to throw up the point and clear the obstacle. I must again caution you against using the slightest force during any of these proceedings. The young operator should never forget that it is very possible to lacerate the lining membrane of the urethra, and that this accident may occur without any great amount of force, especially while the instrument is traversing the membranous portion of the canal.

You have now the instrument in the bladder. The next step is to seize the stone. This is easily done when the calculus is small and the blades of the lithotrite large. The blades are, at first, kept closed, and moved in a sweeping direction, with the convexity downwards, from before backwards, along the bas-fond and posterior surface of the bladder; it is then drawn back a little, and the convexity directed to the right or left side, each of which is explored in its turn; lastly, the point of the instrument is directed upwards, and downwards to the space immediately behind the prostate. The instrument should then be carefully rotated, in order to come in contact with the foreign body. This found, the blades of the lithotrite are cautiously opened, and the instrument is pressed on the stone laterally; after which, the blades are closed with the same caution, every effort being made to seize the stone as much towards its centre as is possible. This is an affair of dexterity which practice and great tact alone can attain. It is of importance to remember that the female branch should be kept perfectly immoveable while you are closing the instrument, otherwise you run the risk of displacing the stone, which generally lies against its ascending branch.

Having seized the stone, the surgeon must next satisfy himself that nothing besides the stone is included between the branches of the instrument. At an early period of lithotrity, the mucous membrane of the bladder was more than once pinched up, and ground together with the stone; but such an accident, which mainly depended on the imperfect nature of the instruments then employed, is, I believe, unknown at the present day.

Once firmly fixed between the blades of the lithotrite, the calculus is generally broken down without any difficulty. Many surgeons employ pressure with the hand only; and this answers well enough when the stone is not too large or hard. In other cases the use of the screw becomes necessary. Its slow propulsion soon causes the calculus to yield; and if we employ the rack-and-pinion system, a rapid succession of slight jerks may be communicated, which produce many of the effects of percussion. Should the stone, from its hardness, resist pressure, we must have recourse to percussion as an auxiliary, and Charrière's instrument admits of our employing this mode without withdrawing the lithotrite from the bladder. It is, in fact, both a percussor and a crusher at the same time.

Before withdrawing the instrument from the bladder, it is essentially necessary to ascertain that the branches are perfectly closed, and that no detritus has accumulated in the forceps portion. If this be not done, you may encounter an unexpected obstacle when you arrive at the urethra. A few turns of the screw backwards and forwards will usually suffice to clear the instrument, or Mr. L'Estrange's stilet may be used, if the male branch be grooved to allow of its passage.

It is only in exceptional cases, and when the stone is both small and very friable, that you expect to break it up at a single operation. The first proceeding should always be short, and when the passage becomes accustomed to the instruments, or less irritable, the operation may be prolonged for ten minutes at a time. This is a rule from which M. Civiale never deviates, and his opinion in this matter deserves the deepest attention. From three to eight days should elapse between each operation, to allow the fragments to pass away with the urine, and any irritation which the operation may have excited to subside. Such fragments of the calculus as are too large to come away with the urine must, of course, be treated as distinct calculi, and crushed separately. I shall refer to this point again.

In my next lecture, gentlemen, I shall consider the difficulties which may be encountered in the performance of lithotrity, and the accidents which may accompany or follow it.

Lectures
ON
SOME OF THE MORE IMPORTANT POINTS IN SURGERY.

By G. J. GUTHRIE, Esq., F.R.S.

Late President of the Royal College of Surgeons of England, Consulting-Surgeon to the Westminster Hospital, Surgeon to the Royal Westminster Ophthalmic Hospital, etc.

[*Continued from August No.*]

LECTURE VI.

84. Wounds of the knee-joint, with fracture of the bones composing it, from musket-balls, require immediate amputation; for although a limb may be sometimes saved, it cannot be called a recovery, or a successful result, where the limb is useless; and is a constant source of irritation and distress after several months of acute suffering have been endured, to obtain even this partial relief from impending death. For one limb thus saved, ten lives will be lost; and the sufferer is often glad, after months and years, to lose the limb thus saved, more particularly when the ball has lodged in the articulating surfaces of either of the bones. Amputation at a secondary period, in these cases, does not afford half the chance of success, for many will not outlive the inflammation and the fever which ensue. The amputation should therefore be immediate, unless excision can be substituted for it.

85. Compound fractures of the patella, without injury of the other bones, admit of delay, provided the bone is not much splintered. If the ball should have pierced the centre of the patella, and passed out nearly in an opposite direction behind, the limb will not be saved. If the ball have struck the patella on its edge, and gone through it transversely, opening into the joint, it will very rarely be saved; but if it be merely fractured, there is hope under the most rigorous antiphlogistic treatment, and delay is proper. A ball will occasionally penetrate the capsular ligament, and lodge in the knee-joint, without fracturing the bone; if it cannot be extracted without opening extensively into the cavity of the joint, and the extraction of the ball is absolutely necessary, amputation had better be performed at first, for it will be ultimately necessary. The condyles of the femur and the lower part of the bone being spongy, a ball may pass through them or between them, and fall into the knee-joint, or it may make a prominence on the side of the patella, without passing out, or immediately interrupting the motion of the leg, for the soldier may walk some distance afterwards. The popliteal artery may also be divided in addition, and either of these cases will render amputation necessary; for the ball must be taken out on the fore-part, and the general inflammation of the joint will either destroy the patient in a short time, or, after much distress and hazard, leave him no alternative but amputation. If a ball lodge in the condyles of the femur, within the capsular ligament, and cannot be easily extracted, amputation is advisable; for the limb, if preserved, will not be a useful one. If the ball, on the other hand, lodge without the capsular ligament, and cannot readily be extracted, the wound should be healed as soon as possible; and although it may cause some little inconvenience to the knee-joint, the limb and life of the patient may be saved, as I have seen in many instances, when a continuance of persevering efforts to extract it would have exposed both to great danger. Many cases of wounds of the knee-joint, in which the capsular ligament is wounded, and the articulation opened into without injury to the bones, do well, such as simple incised wounds made with a clean cutting instrument. The success attending all wounds of the knee-joint depends entirely upon the antiphlogistic mode of treatment being rigidly enforced, and to a very great extent. The limb is to be placed in the straight position, a splint is to be put underneath it, in order to prevent any motion, and cold or iced water is to be applied, especially in summer, to diminish the increasing heat. General bleeding may be had recourse to in sufficient quantity to keep all general inflammatory action in due bounds; but it is on local blood-letting the surgeon must principally rely for the prevention of inflammation. Cupping can sometimes be performed with marked effect; but leeches are more serviceable when they can be procured in sufficient numbers; from twenty to forty, or more, may be applied at a time; and whenever the sensation of heat is felt, and is accompanied by pain, they should be repeated until these symptoms subside. The necessity for the local abstraction of blood is so great, that it should never be lost sight of for a moment; for if suppuration take place throughout the cavity of the joint, it is followed, in most instances, by ulceration of the cartilages and caries of the bones. By local and general bleeding, the application of cold, rigid abstinence, and the straight position, a recovery may sometimes be effected; but wounds of the knee-joint, however simple, should always be considered of a very dangerous nature, infinitely more so than of the shoulder, the elbow, or the ankle. When a poultice is applied to a gunshot wound of this kind, I consider it the precursor of amputation. Colonel Donnellan, of the 48th Regiment, was wounded, at the battle of Talavera, in the knee-joint, by a musket-ball, which gave him so little uneasiness, that he could scarcely be persuaded to proceed to the rear. At a little distance from the fire of the enemy, we talked over the affairs of the moment, when, tossing his leg about on his saddle, he declared he felt no inconvenience from the wound, and would go back, as he saw his corps was very much exposed. After he had stayed with me a couple of hours, I persuaded him to go into the town. This injury, although at first to all appearance so trifling, proceeded so rapidly as to prevent any relief at last

being obtained from amputation, and caused his death in a few days.

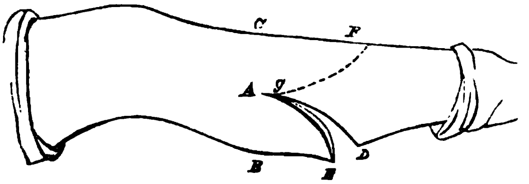
86. *Excision* of the knee-joint is an operation attended, until lately, with so little success, that it has been rarely performed. It is probable that the result may be more favourable in cases of injury in which the femur and tibia have both been so much injured by a musket-ball, without doing much mischief to the soft parts, as would have rendered amputation necessary. In such cases, provided every accommodation, and particularly absolute rest, can be obtained for the sufferer, excision should be attempted, in preference to the amputation recommended in 84 and 85. Three cases of success have lately been published by Mr. Jones, of the island of Jersey; and his method of operating is here transcribed, as sent to me by himself.

"In my first case, the incisions were in this form, H, two lateral along each side of the joint, and a transverse one immediately over the middle of the patella. The flaps were then dissected upwards and downwards, the patella removed, (and I do not see any advantage can be gained by keeping it, even if not diseased ;) the crucial and lateral ligaments were then divided, and the joint completely opened. The leg was afterwards bent backwards on the thigh, and the diseased portion of the femur was cleared, and removed with an ordinary amputating saw. The same method was followed with the tibia; the bones placed in juxtaposition, the flaps brought together by means of a few stitches, and the limb placed in a species of fracture-box. Water-dressing was applied. In the second case, I followed very nearly the same plan, with the exception of my first incisions, which were made something in a horse-shoe shape. In the third case, I removed a considerable portion of integument, and, I conceive, with marked advantage. In the two former cases, I think the cure was protracted by preserving all the diseased external parts."

87. Amputation of the leg is performed in two ways—by the circular incision, and by two flaps, the circular incision being only applicable to the calf. In either way, the stump should, if possible, be seven inches long, for the more convenient application of an artificial leg, which is now made with a socket to fit the stump, instead of resting against the bent knee, unless the stump is too short for its proper adaptation otherwise.

The operation by the circular incision is performed in the thick part of the leg, and the bone is usually sawn through about four inches from the patella, that, when the stump is healed, there may be sufficient length of bone left to support with steadiness the weight of the body, and that greater facility may be given to the motion of the leg, from the preservation of the insertions of the flexor tendons. The most eligible place for the application of the tourniquet, when used, is about one-third of the length of the thigh from the knee, on the inside, where the artery perforates the tendon of the triceps muscle, and where it can be most conveniently compressed against the bone by a small firm pad, the instrument being on the outside, or opposite the pad; or the compress may be placed between the hamstring tendons, a little distance from the hollow behind the joint, the instrument itself being on the fore part of the thigh. In this method the pad must be thicker, and the compression is more painful, and not more secure. The surgeon should stand on the inside of the leg to be operated upon, that he may more readily saw the fibula at the same time as the tibia, by which the chance of splintering the fibula is diminished; for this bone is held much more steadily under the saw when the tibia is undivided, whatever pains may otherwise be taken by the assistants to secure it. The limb should be a little bent, and the circular incision made with the smaller amputating knife through the skin and integuments to the bone, on the fore-part, and to the muscles on the outside and back part; and as the attachment of the skin to the bone will not readily allow of its retraction, it must be dissected back all round, and separated from the fascia, the division of which, in the first incision, would avail nothing, from its strong attachments to the parts beneath. The muscles are then to be cut through, nearly on a level with the first incision, and down to the bones. The inter-osseous ligament between the tibia and fibula is to be divided with the catling; and as several of the muscles cannot retract, in consequence of their attachments to the bones, they are to be separated with the knife; and in the same manner, the inter-muscular septa, or expansions running between them, are to be divided, as they will still prevent their retraction. The retractor with three slips is now to be put on, the centre slip running between the bones, by which the soft parts may be pulled back to a sufficient distance, any adhering part being divided by the point of the knife. The bones are to be sawed through with the usual precautions, and the retractor removed, when the three principal arteries should be secured: the anterior tibial, on the fore-part of the inter-osseous ligament, between the tibia and fibula; the perinæal artery behind the fibula; and the posterior tibial near it, more inwards and behind the tibia; this artery will frequently, however, contract very much, and only shows itself on the compression being taken off the artery above. It in general causes more trouble to secure it than the others, and I have two or three times seen, even in London hospitals, the needle dipped around it in despair, when merely pulling out the artery with the tenaculum, and dissecting a little round it, would have shown the small retracted bleeding vessels arising from it, and have prevented, in all probability, a secondary hæmorrhage. The tourniquet, if used, being removed, the smaller vessels tied, and the stump sponged with cold water, and dried, the integuments and muscles should be brought forward as much as possible, and the straps of adhesive plaster applied from side to side—that is, the wound is to be closed vertically or nearly so, that the straps of plaster may not in any way press upon the fore-part of the tibia, by which the protrusion of it will be avoided—an occurrence which almost invariably follows when the line of approximation is horizontal, and the strips of plaster press upon the bone. If the spine of the tibia be sharp, it should be removed by the saw, whether the operation be done by the circular incision or by flaps.

88. The flap operation, as performed by Mr. Luke, differs from that of the thigh in some particulars. There is a greater variety in the proportion which the soft parts in the posterior flap bears to those in the anterior flap; and the distance from the bones at which the limb is transfixed in the first step of the operation is subject to such variety, that in the large calf the mid-point for the introduction of the knife lies at some distance from the posterior aspect of the bones; in the small calf it is close to it. The course of the knife through the limb is oblique, instead of transverse, for the purpose of accommodating the line of incision to the plane of the two bones. The anterior flap is formed in the same way as in the thigh amputation, but it has proportionately more integuments and is thinner; yet its base and length are rendered equal to the base and length of the posterior flap, and may be adjusted evenly with it when the stump is dressed. In the circular division of the remaining soft parts, after the formation of the flaps, there is a necessary variation in the proceedings, from the circumstance of there being two bones united by interosseous membrane. It may, however, be accomplished by sweeping the knife around the more distant bone of the two, its point being afterwards carried between the bones through the interosseous membrane. While the knife is between the bones its edge may be so turned that the membrane may be divided longitudinally to any convenient extent, for the easy introduction of a retractor, and the soft parts around the bone nearest to the operator may subsequently be divided by a sweep of the knife, in a manner similar to that adopted for the division of parts around the more distant bone. The sawing of the bones and dressing of the stump are accomplished as in the thigh amputation, but more care is required to avoid pressure on the acute margin of the tibia, which, when very sharp, should be removed, and to prevent the pendulous state of the flaps.

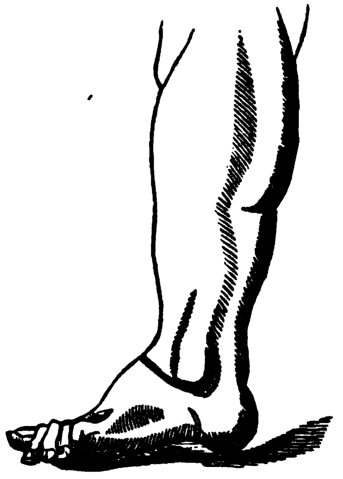


A. The mid-point between *B* and *C*, at which the knife is introduced for carrying it across the limb.
A to *D*. The course of the excision to form the posterior flap, *E*.
F to *g*. The course of the incision to form the anterior flap.

When the nature of the injury renders amputation necessary at or immediately below the tuberosity of the tibia, the operation may be done with safety. Baron Larrey recommended the removal of the head of the fibula in such cases, which I have done with impunity, and made thereby a better stump than if it had not been done; but as the articulating surface of the head of the tibia does sometimes enter into the composition of the knee-joint, and this cannot be known beforehand, the removal of this portion of the fibula is not advisable, neither must the tibia be sawn above the tuberosity, lest the capsular ligament be implicated. As an operation by which the knee-joint is saved, it is important, for although the stump is very short, it forms a solid support for the body, and enables the patient to walk without the aid of a stick, and admits of the adaptation of an artificial leg. The skin, in these cases, must be saved, in every direction, by flaps, to form a covering. When in sufficient quantity, the operation may be done by the circular incision, as much muscle as possible being saved, to aid in forming a covering on the under and outer sides. The posterior tibial artery will be found to have retracted behind the head of the bone, from whence it, or others which may bleed, must be drawn out. The nerves must be cut as short as possible.

Excision of the Ankle-joint.

89. This operation should be performed in the following manner:—Begin the incision behind the external malleolus, an inch and a half above its lower extremity, and carry it downwards and then forwards across the front of the ankle-joint, then under the internal malleolus and upwards, close behind this process, to the extent of an inch and a half; this incision should merely divide the skin, and should not, on any account, wound the subjacent parts. Raise the flap thus made, and, placing the leg on its inside, detach and turn aside the peronæi tendons from the groove behind the external malleolus. Cut through the external lateral ligaments of the ankle-joint, keeping the knife close to the malleolus; then with the large bone-scissors, or nippers, cut through the fibula from one-half to three-quarters of an inch above its junction with the tibia, and dividing the ligamentous fibres connecting the two bones, remove



the malleolus externus. Turn the leg on to its outer side, and cut through the internal lateral ligament close to the tibia, to avoid wounding the posterior tibial artery; this will allow the foot to be dislocated outwards, and the lower end of the tibia to be brought well out through the wound. An assistant keeping the foot and tendons out of the way, the lower end of the tibia is to be removed by a fine saw to the same extent as the fibula, or as high as the injury or disease requires. The articulating surface, or injured part of the astragalus, is then to be removed, after which, the foot is to be returned to its proper position, and the cut surfaces of the tibia and astragalus brought into and kept in close approximation by suture, strapping, and bandage. The limb is to be placed on an outside leg-splint, having a foot-piece to it; and in order to prevent any matter oozing, an opening should be maintained on the outside of the joint, with a corresponding hole in the dressing and splint, for this purpose, until the recovery is completed. The shot-hole will sometimes answer the purpose when the injury is inflicted by a musket-ball. There are no vessels to tie unless wounded accidentally.

Removal of the Os Calcis.

90. If this bone should be much shattered, and the injury nearly confined to it alone, it may be removed in the following manner. Make a semilunar incision down to the bone from the posterior angle of the inner malleolus, across the sole of the foot to the external malleolus, the convexity of the flap being forwards. This flap being turned back, the tendo-Achillis is brought into view, and is to be separated from its attachment, or cut across above it. The point of junction between the calcis and astragalus being ascertained, the ligamentous fibres are to be cut through, and the joint between them opened, when the knife is to be carried from behind forwards, in order to divide the inter-osseous ligament between them. Some ligamentous fibres passing between the calcis and cuboid bones are then to be cut through, when the os calcis may be dissected out without difficulty. The posterior tibial artery and nerve will be divided.

This bone was first removed for disease of its substance by Mr. Hancock, and has been done several times since by M. Greenhow and others, with success.

91. When the bones of the leg are not injured, although those of the tarsus are so far destroyed as to render amputation necessary, the operation introduced by Mr. Syme for removing the foot at the ankle-joint, will be well adapted for this injury, provided the soft parts have not been so much destroyed as to prevent the formation of a covering flap or flaps. His directions are,—

"The best instrument for performing the operation is a large bistoury, or small amputating knife, with a blade about four inches long. There is no occasion for a tourniquet, as the assistant has complete command of the vessels by grasping the ankle. In my first operation, the flap was made unnecessarily long; and I feel confident that the following directions may be trusted for exactly determining its proper extent. The incisions across the instep and sole of the foot should be curved, with the convexity forwards, and exactly opposite each other. A line drawn round the foot, midway between the head of the fifth metatarsal bone and the malleolus externus, will show their extent anteriorly, and they should meet a little way farther back, opposite the malleolar projections of the tibia and fibula. Care should be taken to avoid cutting the posterior tibial artery before it divides into the plantar branches, as, in the two cases where I did so, there was partial sloughing of the flap. If the ankle-joint is sound, the malleolar processes should be removed by cutting-pliers;* but if the articulating surfaces of the tibia and fibula be diseased, a thin slice of these bones should be sawn off. The edges of the wound should be stitched together, and lightly dressed. When the cure is completed, the stump is of a conical form, and having for its apex, or central point of pressure, the thick integument which covered the heel, to which a particular kind of shoe must be adapted, with which the sufferer can walk much better than could have been previously expected."

This operation has not answered, in some of the hospitals in London, the expectations entertained of it from its success in Edinburgh, the flap formed from the under part, or heel, having frequently sloughed. This, Mr. Syme declares, is the fault of the operators, and not of the operation, sufficient attention not having been paid to preserve the posterior tibial artery intact, until it has divided into its plantar branches; and he insists, with reason, that the operation should be done exactly as he has described it. It is an operation more likely to be eminently successful in military than in domestic surgery, from the parts being sound in the former, with the exception of the injury for which it is performed.

Domestic Surgery, or that of civil life, has in these operations of excision of the ankle-joint, and of amputation at that part, repaid her Amazonian sister of military warfare for the improvements she has introduced into the great art and science of surgery; and a degree of generous emulation will be excited and maintained between them, which, it may be believed, will, in the event of a European war, add much to its scientific and preservative character.

92. A musket-ball will seldom pass through the foot without injuring a joint, of some kind, or wounding a tendon or nerve; and the injury to the fascia, which is very strong on the sole of the foot, and frequently covered by much thickened integument, is always attended with inconvenience. The extraction of balls, of splinters of bone, of pieces of cloth, and the discharge of matter, become more difficult, and often cause so much disease as ultimately to render amputation of the foot necessary. Tetanus is a frequent consequence of these injuries, and is a disease, in its *acute*

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* Strong spring-scissors.

form, certainly remediable by no operation or medicine at present known. Amputation has always failed in my hands, although it was strongly recommended by the Baron Larrey. The operative surgery of the foot should be done as soon after the injury as it can be conveniently accomplished, for a large, clean, incised wound is a safe one, compared with a torn surface and splintered bone, with extraneous substances, of much less extent; and as a ball lodged in the foot is always very dangerous, great attention should be paid in the examination of even slight wounds. A cannon-shot can seldom strike the foot without destroying it altogether; it may, however, strike the heel, and destroy a considerable part of the os calcis, without rendering amputation necessary, if the ankle-joint be untouched; for by due attention in removing the spicula of bone at first, and by making free openings for the discharge of matter in every direction in which it may appear inclined to insinuate itself, the limb may be preserved in a useful shape.

93. Wounds from cannon-shot injuring the fore part of the foot are better remedied by amputation at the joints of the tarsus with the metatarsus, than by sawing these bones across; but when the injury affects only one or two toes, they may be removed separately, recollecting that it is of greater importance to preserve the great toe than any other, and that this toe is worth preserving alone, when any one of the others would be rather troublesome than useful. Musket-balls seldom commit so much injury as to require amputation as a primary operation, although they frequently render it necessary as a secondary one. The splinters of bone are to be removed, the ball and extraneous substances are, if possible, to be taken out; and if the bones, tendons, and blood-vessels are so much injured as to render the attempt to preserve them useless, amputation is to be performed; but if the preservation of the limb be thought practicable—and it generally will be so in wounds from musket-balls—the attempt must be made under the most rigid antiphlogistic treatment, the local application of leeches and cold water, from the first, and with free openings for the subsequent discharge. Musket-balls seldom injure the metatarsal bones so as to require their removal with their toes, and under the treatment above-mentioned, these wounds will in general be healed without further operation. Wounds from grape-shot occasionally render the removal of the metatarsal bone of the great toe at the tarsus necessary, although much should be done to save it. The little and adjacent toes are also sometimes removed at the tarsus, the middle ones but seldom, as it is not an easy operation to perform, in consequence of the naturally close attachment of these bones, and the additional compactness they have acquired from the pressure of the shoe. Hæmorrhage from the arteries of the foot authorizes in a very slight degree amputation, even when superadded to other causes; for the incisions necessary to secure the bleeding vessels will not, in general, add much to the original injury unless they are very extensive; on the contrary, they will render the wound less complicated and more manageable.

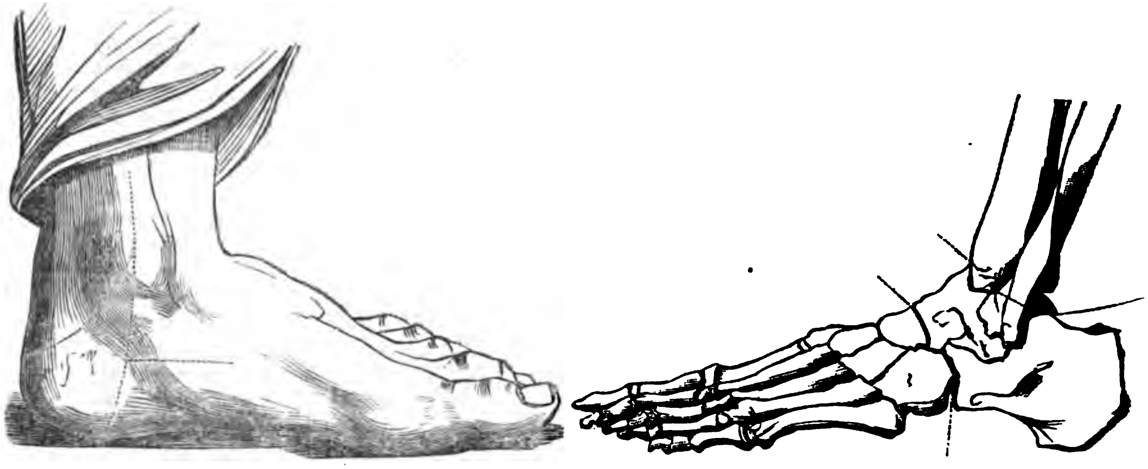
94. Amputation at the tarsus, when it is proposed to save the flap from the under part of the foot, is performed in the following manner: The joints of the metatarsus with the tarsus, being well ascertained, an incision is to be made across the foot, in the direction of the joints, but from half to three-quarters of an inch nearer the toes, and the integuments drawn back over the tarsus. From the extremities of this incision, two others are to be made along the sides of the great and little toe, for about two inches and a half, according to the thickness of the foot; and the ends of these two incisions are to be united by a transverse one down to the bone, on the sole of the foot, the corners being rounded off. The flap thus formed on the under part is to be dissected back from the metatarsal bones, including as much of the muscular parts as possible, as far as the under part of the joints of the tarsus. The metatarsal bones are now to be removed by cutting into and dislocating each joint from the side, commencing on the outside, by placing the edge of the knife immediately above, but close to the projection made by the posterior part of the metatarsal bone supporting the little toe, which prominence is always readily perceived. The arteries are to be secured; any long tendons and loose capsular ligament are to be removed with the knife or scissors, and the under flap, formed from the sole of the foot, is to be raised up so as to make a neat stump, when brought in contact with the upper portion of integuments that were first turned back; the whole to be retained in this position by sutures, adhesive plaster, and bandage. When the skin of the under part of the foot is much torn, which is not uncommon in a wound made by a fragment of a shell, the flap cannot be formed from it; in this case it must in great measure be saved from the upper part; but the integuments being here so much thinner, the flap is not so good a defence against external violence, and will be more readily affected by cold. The metatarsal bones may be sawn across in a straight line, in preference to removing them at the joint; and although the whole may be sawn across at once with more ease than any one of them individually, except the outer ones, yet the stump is never so much protected from external violence as when the operation is performed at the joint of the tarsus.

95. Amputation of the foot, leaving the astragalus and calcis, may, in certain cases of injury anterior to these bones, be performed with advantage, care being taken to make the under flap so large that the line of cicatrization may be on the upper and anterior edge of the stump, rather than transversely across the face of it, in order to render it firmer and better able to resist and sustain any pressure which may be applied to it.

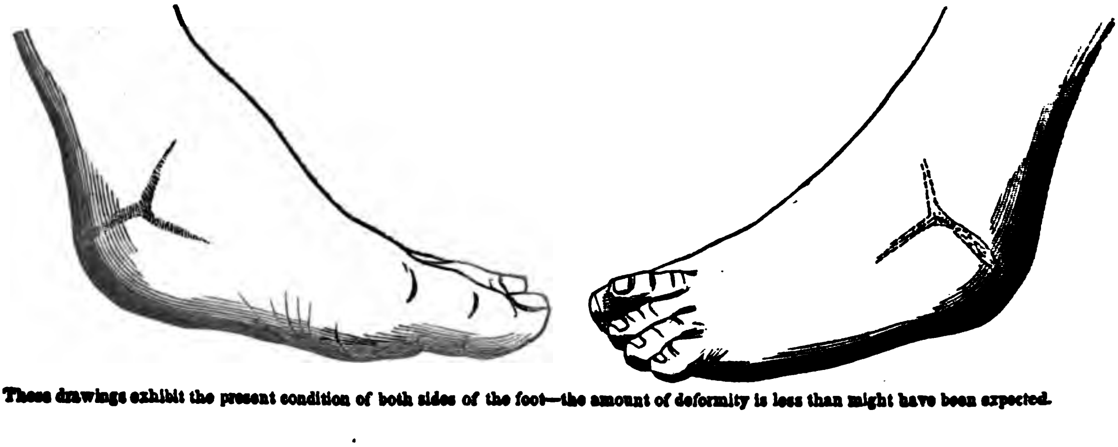
The limb being placed on the table, and held by an assistant, the surgeon ascertains the situation of the joint formed by the junction of the astragalus with the scaphoides, which will be indicated by the prominence on the inside of the tarsus, discoverable by passing the finger forwards, from the malleolus internus towards the side of the great toe. The joint of the os cuboides with the os calcis on the outside, is always to be found about half an inch behind the projection formed by the posterior part of the metatarsal bone of the little toe. The under part of the foot being firmly held in the palm of the surgeon's hand, he places the point of the thumb on the external joint, and that of the forefinger over the internal one, which indicate a tranverse oblique line for the first incision, and which should commence near the thumb, and be continued with a semilunar sweep, the convexity towards the toes, until it terminates at the side of the foot, where the forefinger was placed. The joint between the astragalus and scaphoides is now to be opened, by directing the knife from within obliquely outwards towards the projection of the metatarsal bone of the little toe. These bones are then to be dislocated by pressure, and the ligaments retaining them divided. The joint between the os cuboides and the os calcis is now to be opened from without inwards, and the bones dislocated. The strong inter-articular ligament being cut, and the joint largely opened, the knife is to be passed between the under surfaces of the scaphoides and cuboides, and the soft parts adhering to them, and cut from behind forwards a flap sufficiently large to cover the wound, which is then dressed in the usual manner.

96. Mr. Wakley, jun., has lately performed a successful operation for the removal of the astragalus and calcis, deserving of imitation in peculiar cases. A description of the operation is given in a report written by Mr. Weeden Cooke, the house-surgeon, and reported in a former number of The Lancet. It is as follows :—

"The patient being under chloroform, the diseased foot (the left) having been drawn forwards, so as to be free of the table, I made an incision from malleolus to malleolus, directly across the heel. A second incision was next carried along the edge of the sole from the middle of the first, to a point opposite the astragalo-scaphoid articulation, and another on the opposite side of the foot, from the vertical incision to the situation of the calcaneo-cuboid joint. These latter incisions enabled me to make a flap about two inches in length from the integument of the sole. In the next place a circular flap of integument was formed between the two malleoli posteriorly, the lower border of the flap reaching to the insertion of the tendo-Achillis. This flap being turned upwards, the tendon was cut through, and the os calcis having been disarticulated from the astragalus and cuboid bones, was removed, together with the integument of the heel, included between



The incisions above described are here marked out on a healthy foot.—This skeleton of the foot will at the same time show the amount of bone removed.



These drawings exhibit the present condition of both sides of the foot—the amount of deformity is less than might have been expected.

the two incisions. The lateral ligaments connecting the astragalus with the tibia and fibula were now divided, and the knife was carried into the joint on each side, extreme care being observed to avoid wounding the anterior tibial artery, which was in view. The astragalus was then detached from the soft parts in front of the joint, and from its articulation with the scaphoid bone, and the malleoli were removed with the bone-nippers. The only artery requiring ligature was the posterior tibial. During the few minutes the operation lasted, the patient did not manifest the slightest symptoms of pain or uneasiness. On bringing the edges of the flaps together, they were found to fit with accuracy, and were secured by twelve interrupted sutures. The wounds were covered by several folds of lint, and supported by a light bandage. The patient, who had lost but very little blood, was then removed to his bed.

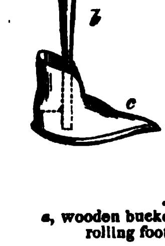
"On the 21st of February, he was discharged the hospital, exactly two months after the operation, to go into the country, the foot being well, with the exception of a small opening. He came again up to town on the 15th of April, and has become stout. The sinus on the left side of the foot had closed, but a slight collection of matter had formed a little above the instep; this was discharged by means of a puncture with the lancet, and he was directed to return to the country, and dash cold water over the foot two or three times daily. On the 10th of June he returned to town, and to his employment. There was then not the vestige of a wound, the last opening having completely healed. He was ordered to wear a high-heeled boot. He is now a healthy-looking man, and walks very well."

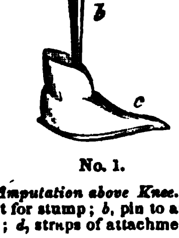
As the posterior tibial artery must be divided, the preservation of the anterior one is essentially necessary; the success of the operation depends upon it. This artery, accompanied by its vein and nerve, lies close upon the astragalus; the artery may be said to be even attached to it, a point requiring the greatest attention in dissecting out the bone without injuring this vessel, which is seen under the scalpel.

97. Amputation of a single metatarsal bone, on the outside or inside of the foot, is to be done by an incision round the root of the toe, terminating in a line on the outside of the foot, which is continued down to the joint of the tarsus. The integuments are turned back above and below from the metatarsal bone, which is to be dissected out, with the toe attached to it, and the flaps brought together, so as to leave but one line of incision. In military surgery there is always a wound; and when the removal of the bone is necessary, it is in general an extensive one, and with loss of substance, so that a covering cannot be saved in this way, especially on the upper part of the foot, where the ball or piece of shell strikes. The surgeon, therefore, must be prepared to look for his covering on the under part, where he will occasionally not be able to procure it in sufficient quantity, and it must not be forgotten that the neighbouring parts will often be injured. The object must then be to save the integuments from such parts as are uninjured, so as to cover in the wound as nearly as possible when the bone is removed. In doing this the first incision should commence at the upper and inside of the toe, and be carried round so as to separate the toe from its attachment to its fellow. If the injury be entirely on the upper part, the continuation of this incision must be so regulated as to form the whole of the flap from below, and the commencement of it above must be continued round the injured part, so as to meet the lower end near the articulation of the bone with the tarsus, and *vice versâ*. If the ball have gone directly through, destroying the integuments above and below, the incisions must surround the injured part in such manner, on the upper and under side of the foot, as to allow the flaps to be formed in every other part, except where the injury was inflicted, and from whence granulations must arise. By saving skin everywhere else, the wound will be much diminished in size, will heal sooner, will be less liable to suffer from external violence, and less obnoxious to the subsequent pain, which generally at intervals attends wounds of this kind.

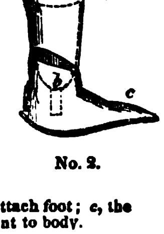
98. M. de Beaufoy invented a foot for the wooden pin used by the soldiers in the Invalides, at Paris, who had suffered amputation above or below the knee, which Mr. Bigg, of Leicester-square, has tried in a satisfactory manner on some of the old soldiers similarly mutilated at Chelsea Hospital, by permission of the authorities; and one of them reports, that with it he not only found his step to be steadier, and taken with greater certainty, but also that its length was much increased, and that he could walk twice the distance in the same time as he could with his ordinary pin-leg.

The advantage of the invention is, that whereas a common wooden pin only gives one point of





No. 1.



No. 2.

Amputation above Knee.
a, wooden bucket for stump; *b*, pin to attach foot; *c*, the rolling foot; *d*, straps of attachment to body.

Amputation below Knee No. 1.
a, wooden shape to receive knee; *b*, pin; *c*, rolling foot; *d e*, straps of attachment.

Amputation below Knee No. 2.
a, wooden bucket to receive the whole of stump; *b*, fixture to foot; *c*, rolling foot; *d*, straps for knee.

support, and consequently the body is obliged to raise itself, so as to describe an arc, of which the end of the wooden pin is the centre, the curved foot acts like a *series of levers*, each successive point of it being a *fulcrum*. It may be compared to a portion of a wheel: the body of the patient is rolled forward, with scarcely any effort of his own, the support being continuous, and preventing the slightest liability to slip. It also lessens the shock of walking, as the foot begins to act before the whole weight of the body is thrown upon it.

Clinical Lectures

Delivered at Guy's Hospital.

BY JOHN HILTON, ESQ., F.R.S.,

SURGEON TO THE HOSPITAL.

[*Continued from September No., p.* 158.]

LECTURE IV.

CASE OF STONE IN THE BLADDER.

Case in which the patient died with the calculus in the bladder; exhibition of the preparation; details of the case. The symptoms of stricture of the urethra and those of stone in the bladder compared. The pathological significancy of an habitually hot and dry skin. The importance of consultations. Should, in the present case, lithotomy or lithotrity be performed? Circumstances favourable to lithotrity. Question of the quantity of water which should be in the bladder during the operation of lithotrity. Appearance of the urine; microscopical examination. Determination of the lesion which produces hæmaturia. Reasons for not using leeches in peritonitis connected with diseased kidney. The advantages of washing out the bladder; quotation of a case in which this practice was especially useful. Symptoms of urea in the blood. Somnolency. Irritable bladder. Good effects of chloroform applied to the hypogastrium. Nervous irritability brought on by poisoned blood. Death by coma; post-mortem examination; urine in the cavity of the abdomen; pus in the kidneys; parietes of the thickened bladder of a green colour; attempt at an explanation of this phenomenon; cause of the thickening of the bladder, and of the formation of sacculi; decomposition of the urine retained in these sacculi.

GENTLEMEN,—When we last met, I concluded the remarks I had to offer on the fracture of ribs, the treatment of that accident, and its complications; and I promised that I would this day direct your attention to a case of stone in the urinary bladder. We have lately had, in this hospital, several—indeed, I may say a considerable number of cases of this important disease, and the patients have undergone the operation of lithotomy or lithotrity, without any untoward results; but I have now before me, for your inspection, the urethra, urinary bladder, stone, and kidneys of a patient who had stricture of the urethra, and died with a stone in his bladder, and who presented during life certain symptoms and indications which, taken and associated with this pathological specimen, may serve to render the case worthy of your attention, by elucidating the cause of the symptoms, and suggesting to your minds the value of a right interpretation of them. I will now read to you a short and succinct account of the case.

"S. C——, aged sixty, married, a brickmaker, residing at Norwood, is a thin man, of cachetic appearance—one of those who, though well fed, do not assimilate properly, and may justly be called cachetic, or badly nourished; but he nevertheless states that his health has generally been good. He is now of temperâte habits; he admits that in his younger days he was accustomed to drink considerably. The patient applied at the hospital with a view of obtaining relief from symptoms of stricture of the urethra, under which he had suffered, especially for the last nine months, and for which, about a month ago, he had been under the care of one of my colleagues. With comparatively little difficulty, he was cured of his stricture by gradual dilatation. He states that his urine has been turbid (with occasional intermissions) for three or four years, and during this period he has frequently passed a large quantity of thick, viscid mucus, (the appearance of which he compares to that of seminal fluid.) By this mucus, during micturition, a temporary obstruction is occasionally caused in the urethra, and the flow of urine suspended; but the expulsion of the plug being effected by a considerable effort, the urine resumes its force. This appearance of mucus is more especially manifest after any unusual exertion."

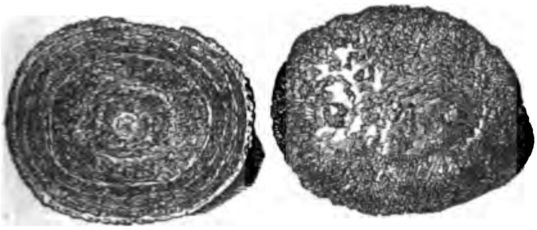
We may pause here for a moment; and I would suggest for your inquiry whether these symptoms were caused by stricture of the urethra or stone in the bladder. Such signs as mucus in the urine, sudden arrest of flow of the latter during micturition, &c., are mostly due to stone in the bladder. But to proceed: "The present symptoms are as follow. The patient experiences much pain and difficulty in passing his urine, and a darting sensation about the middle of the urethra, somewhat anteriorly to the membranous portion, this sensation being more acute in the sitting posture; the bowels are relaxed, tongue slightly coated with a white fur, pulse rather accelerated and feeble, and the skin hot and dry, which condition of skin is, he says, habitual with him."

Notice the fact of the skin being habitually hot and dry. This is a circumstance worthy of being noted and remembered; for such a state of skin is generally indicative, in these cases, of mischief going on at the kidneys, and attention should therefore be turned to that quarter. "Previously to the patient's admission, Mr. Knaggs, the dresser, attempted to pass No. 4 catheter, but did not succeed, the instrument becoming apparently grasped by the prostatic portion of the urethra, from which, with slight force, Mr. Knaggs disengaged and withdrew it. The patient could, however, still pass urine in a small and interrupted stream.

"Oct. 30th.—Catheter No. 2 was passed this day, and Mr. Hilton ordered large doses of saline mixture to be taken twice a day, and catheters of a gradually increased size were to be used, with a view of overcoming the stricture.

"Nov. 2nd.—On introducing a sound this day, the dresser detected the presence of a calculus in the bladder, seemingly of small size, and, from its hardness, as evidenced by the "ring" of the metallic sound when it struck the stone, and roughness, it was surmised by Mr. Hilton to consist of oxalate of lime."

I show you here the stone, and you will perceive that the supposition was correct.



"Mr. Cooper and Mr. Cock were now requested to meet Mr. Hilton in consultation." Here I must impress upon you the paramount importance of conferring with your professional brethren when you meet with cases of doubt or uncertainty as to the cause of symptoms, or the best plan of treatment; for the aim and objects of your investigation and anxiety is "truth," and assuredly it is much more likely to be obtained when several experienced men assist each other, *bonâ fide*, in elucidating it. You will not, of course, have such facilities for consultations or gathering professional opinions in the country as we have in town, and particularly in hospitals; but I would advise you to follow in this respect the examples you witness in this institution, and endeavour to realize in yourselves, and solicit from others, an honest manifestation of mutual confidence and dependence on the integrity of purpose and right feeling of your professional neighbours. Do your utmost in important cases to consult with other practitioners, and so secure for your patient, when yourself in doubt, the advantage of a combined experience. This, I apprehend, is rarely done in country life; but it would certainly be a happier state were it customary. The object of the consultation spoken of in the account of the case was to ascertain which of the two operations, lithotomy or lithotrity, should in the present case be preferred.

"8th.—Not so well; tongue furred, and febrile symptoms; there is no appetite; and though the patient passes his urine better, it is always followed by a small quantity of blood. Mr. Cooper, on sounding the patient, concurred with Mr. Cock and Mr. Hilton in the opinion that the stone was of the mulberry kind, and that the present was a case adapted for lithotrity."

I held this opinion, as there was no enlargement of the prostate gland, and the urethra was sufficiently capacious for the lithotrite to pass without stretching or tearing the canal, as the bladder was tolerably healthy, except so much as might arise from the local irritation of the stone, and the viscus would retain sufficient water to allow of the operation of lithotrity. And here the question arises—How much water should be in the bladder for the operation to be safely performed? To this I may say, in general terms, the more the better if the stone be large. With a small stone I know it may be done safely with four ounces, and possibly with a less quantity; but you must then employ the extremest gentleness and steadiness, with very measured care not to do mischief with the lithotrite. Be then on your guard; for remember, irreparable mischief may be done in this operation, and not seen except in the results, when the bladder is small and but little extensible. Examined with such considerations in view, it was apparent that this was a case for lithotrity.

"10th.—The patient is much annoyed by a cough, and the febrile symptoms continue unabated. He was ordered five grains of the ipecacuanha-and-conium pill, and a febrifuge mixture."

This continuance of a febrile state is a very unfavourable circumstance, for it often denotes some latent injury in the patient, and the surgeon may well feel some alarm about the case.

"*Characters of the urine.*—In appearance it is cloudy, and, on standing, a copious deposit of a viscid substance of the mucopurulent kind takes place. The urine is acid, but very fœtid, and its specific gravity is 1·018. Mr. Hilton examined this deposit with the aid of the microscope, and found in it pus-globules and epithelial scales, with mucus and blood.

"15th.—The cough is decidedly better, but the other symptoms continue with unabated severity, and, added to his difficulty of micturition, are an increased frequency and considerable hæmaturia."

You perceive that the man's cough was relieved, but that the skin remained dry and harsh; this points to a persistent febrile state, and an abnormal condition of the kidney. But it is worth while to inquire about the source of blood, the hæmaturia here mentioned. Did the hæmorrhage originate from the bladder or kidney? The probability would be, that the blood came in part from the latter organ, as there was pain on pressure in the lumbar region.[*]

"Nov. 17th.—Mr. Hilton had intended, if he had found the patient improved, to attempt lithotrity this day, but was deterred by the man's febrile condition; the tongue was more furred, the pulse more rapid, and the countenance expressive of much anxiety. He was ordered to have an aperient enema, to omit the use of porter, to take six minims of dilute hydrocholoric, three of dilute nitric acid, and twenty of tincture of henbane, in decoction of Pareira brava, three times a day, and to have the urine drawn off night and morning.

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[*] Experience has shown that even a very rough mulberry calculus does not render the patient necessarily liable to bleeding from his bladder; nor does such a stone necessarily produce much irritation in the bladder, in fact, with stone cases generally, the vesical irritation is not at all proportioned to the rough character of the stone; but is associated rather with its chemical composition, which is determined by abnormal constitutional causes, superadded to, or produced by, an unhealthy state of the bladder or kidneys, or both.

"18th.—Dr. Barlow was requested to see the patient; he expressed an opinion that there was no pneumonia, and that the symptoms arose from the irritation produced by the presence of the stone in the bladder. Dr. Barlow added a little spirit of nitrous ether to the mixture."

I wished Dr. Barlow to see the patient, because I suspected that the latter might be labouring under a treacherous pneumonia, but such was not the case. It was, however, evident that the continued feverish state was a very bad sign, and one of great importance, for it is indicative, as I said before, of diseased kidney, the most frequently associated visceral complication, both in stricture and stone cases. Bear this in mind, and you will perhaps hereafter find in it a solution for some otherwise puzzling cases which may be under your care.

"Now. 20th—Still very feverish; bowels relaxed; the hæmaturia continues; and the abdomen, especially, towards the hypogastric region, is tender on pressure. Mr. Hilton ordered a febrifuge mixture, a poultice to the abdomen, and an opiate at night. Also to have the bladder syringed at night and morning with warm water at 98° Fahr."

From the symptoms which I have just detailed you will surely guess at once that there was peritonitis, and perhaps be surprised that I did not order any leeches to the abdomen. My reason for not taking blood was, that the kidneys were probably diseased, and that inflammations of serous membranes, under such circumstances, are generally of a very low type, and preclude the propriety of taking away blood. Instead of blood-letting, you must adopt a soothing plan in these cases. As to the washing out of the bladder, I regret that this measure is not more frequently adopted in private practice; for the benefits to be derived from it by the patient, in chronic inflammation of the bladder, are very striking. When you proceed to inject the bladder for the purpose of clearing it of its decomposing and decomposed contents, or as a previous step to lithotrity, you should ascertain the temperature of the water, not with the hand, but the thermometer; 98° to 100° Fahr. will just give you the proper heat. The test of the hand is deceptive, for the sensation experienced will much depend on the then state of health of the person who is examining the temperature.

During the past autumn I have had a case in which the great benefits to be derived from washing out the bladder were strikingly exemplified. The patient was a gentleman between sixty and seventy years old, who had met with a fracture of the spine, and whose bladder, as is usual in these accidents, became paralyzed. The urine was frequently drawn off, but it was very ammoniacal, and the most alarming typhoid symptoms were gradually coming on. When I saw the patient, I conjectured that much of the mischief was owing to the horridly fœtid mucus lying in the bladder, and immediately proceeded, after the removal of the urine, to wash out the viscus with warm water, at the temperature above mentioned. About three ounces of most stinking, ropy mucus came away; that very night the patient slept well, a comfort which he had not experienced for some time, and by regularly following up the practice he has done well.

But to return to our nosocomial case:

"Nov. 21.—Has been much benefited by the washing out of the bladder; less blood and mucus accompany the urine, which also seems to be voided with less difficulty.

"22nd.—Feels better after every syringing of the bladder; his distressing symptoms seem to return periodically every four hours, and he feels pretty easy during the intervals. Mr. Hilton ordered six ounces of port-wine as a daily allowance.

"25th.—Much the same; micturates with difficulty, and has frequent desires to evacuate; he drops off to sleep very easily and quickly, dozes a good deal, and would even sleep soundly and deeply if he was not aroused by the desire to pass water, a very small quantity following each attempt, so that the aggregate quantity in the twenty-four hours is small. The patient's cheeks display a hectic flush, and his pulse is still accelerated; a drooping of the upper eyelid, and a suffused condition of the conjunctiva are now observed."

I must again interrupt this very accurate account of the case, to observe that the symptoms which have just been described point to the presence of urea in the blood. The brain thus becomes loaded with the noxious principle, and the patient *drops off to sleep easily.* In fact, you must carefully bear this in mind, and remember that drowsiness and quickly dropping off to sleep are very important symptoms of diseased kidney when other signs of that affection are present.

You see how much this patient suffered from an irritable bladder, how often, and with how little result, he made attempts to pass water; in so distressing a case I am inclined to think that chloroform applied to the hypogastric region might allay the irritation. I have had for some time past under my care a young lady of twenty-two, who for the last seven years had been tormented with irritable bladder, and she was considerably benefited by the local application of chloroform. The poor thing was obliged to pass water every quarter of an hour both day and night, this state of things probably depending on diseased spine. I put her on her back for several hours together, applied the chloroform diligently to the lower portion of the abdomen at night, and she is now able to sleep for fours together, an amount of continuous rest which she had not enjoyed for years.

You just heard that our present patient had a drooping of the eyelids: what pathological change does this indicate? It shows complete nervous relaxation and debility. The nervous energy is so much impaired that its agency upon the levator palpebræ is almost null; this is certainly at all times a very bad sign, and calls for serious consideration and energetic measures.

I remember also that the patient had twitchings of muscles, which are not mentioned in the report. These irregular and involuntary movements depend on an irritated state of the roots of the nerves, or centre of spinal marrow, brought on by the poisoned state of the blood, which fluid is pervaded by a noxious principle derived from something defective in the depurating function of the renal organs. Such symptoms are often seen in practice, and you should quietly observe them, and not fall into the mistake of asking a host of inconsiderate, routine, misapplied questions. Much may be learned by scrutinizing your patient silently, and you should watch for the most trifling symptoms, reflect upon them, weigh their value, group them, and then form your diagnosis, from which the treatment will naturally flow.

So you fully understand that the present patient was very drowsy, that he would have slept much but for the irritability of the bladder, that he had droopings of the eyelids and twitchings of the limbs. Let us now proceed with the case:—

"November 27th.—Not so well, The patient lies in a drowsy, apathetic state, approaching to stupor; the frequent calls to micturition, and the difficulty attendant thereon, cause the poor man great suffering. The flushing of the cheeks is more marked, and the frequency of the pulse increased in an equal ratio with a diminution of its power; abdomen very intolerant of pressure.

"28th.—All the unfavourable symptoms are considerably aggravated; the urine is very fœtid, and resembles the sanguineo-purulent fluid from an unhealthy abscess. Dr. Barlow saw the patient this day with Mr. Hilton, and ordered equal parts of the julep of acetate of ammonia and decoction of pyrola or winter green, three times a day, with ten grains of extract of henbane at night.

"29th.—The patient died comatose at half-past ten, A.M."

Here ends the account of this instructive case; and I would just remark, before reading to you the description of the post-mortem appearances, that the fact of the man dying comatose verifies, or at any rate supports, all that has been stated as to the contamination of the blood by urea.

"*Autopsy fifty-two hours after death.*—The stone, when removed, was of the shape and size of a very large broad bean, and composed of uric-acid nucleus covered in by oxalate of lime, with a slight external coating of phosphates, the surface being rough and nodulated. Adhesions existed between the omentum and the inferior part of the abdominal parietes (from recent inflammation,) and the intestines were slightly and loosely adherent from effusion, which had but lately taken place. The peritonæum looked inflamed, and a large quantity of yellowish, turbid serum, having a urinous odour, was effused in the peritonæal cavity, though no perforation in the walls of the bladder could be found. By careful testing, no doubt was left but that a portion of that fluid was urine. On removing the adherent omentum, a tolerably well defined cavity, filled with turbid serum, was observed; this cavity was bounded below and in front by the superior and posterior part of the fundus of the bladder, above and behind by coils of intestines glued to each other and to the omentum. Both kidneys were found in a state of suppuration, and the upper part of the left organ was in a sloughing condition. The substance of both contained numerous points of incipient and complete suppuration, extending as far as, but not implicating the peritonæal investment. Pyelitis also existed in the pelvis of the kidney; and the ureters, near their vesical termination, were thickened; but there was no evidence of recent inflammation. The renal extremities were dilated, their walls considerably thickened, and lined by a pyogenic membrane continuous with that in the kidney.

The bladder presented, after the removal from its internal surface of the thick muco-purulent matter, a greenish colour, extending more or less into the substance of its walls, which were hypertrophied to the thickness of one-third of an inch, and in which numerous sacculi, containing pus, were found. The urethra was apparently free from stricture, though its mucous lining was somewhat congested; the lungs were slightly emphysematous, otherwise healthy, and the heart was sound, but the large veins converging to the heart were filled with black fluid blood."

You have just heard that the parietes of the bladder were of a greenish colour. What is the explanation of that colour? no doubt it is the result of the putrefying process. Orfila thought that that colour was produced by the sulphuretted hydrogen of putrefaction acting on the blood; I must add, however, but without any feeling of confidence in my own opinion on such a subject, that I do not think that the coloration in question depends on transformation of blood; for I made an experiment years ago upon very pure cerebro-spinal fluid, not in the slightest degree impregnated with blood, and by exposure to the putrefactive process it turned green. The substance of the brain will, when putrescent, assume a perfectly green hue, I think more so than another part of the body. Does this green colour depend on the presence of phosphorus? In fact, we may look upon this phenomenon as hitherto unexplained.

You have noticed that the bladder was found hypertrophied to the thickness of one-third of an inch, and I dare say you are aware that this change is owing to the gradual increase in bulk of the muscular fibres, which become more and more developed as the constant efforts of overcoming the obstruction continue. It is a well-known fact that the arm, hand, &c., will become larger and bulkier as they are more frequently used. Some of you may have watched these results upon the muscles of your own hands, in relation to their employment in more or less dissecting. Without indulging too much in palmistry, I think I could, at the end of a dissecting-room session, tell with tolerable accuracy whether students have in this respect been idle or industrious, by the inspection of the arm and hand; I observed these differences distinctly upon myself formerly, when actively engaged upon dissection.

The sacculi which were mentioned in the post-mortem account, and which contained pus, are formed by the hypertrophy of muscular fibres just mentioned, which, by projecting into the cavity of the bladder, leave interstices between them, the depth of which of course depends on the more or less projection of the fibres. The distention by urine from within pushes the yielding mucous membrane outwards towards the peritonæum between the muscular texture, and thus are sacculi formed. Urine collects and remains in them until it overflows, or is pressed by the hand, or the encroaching distention of the surrounding viscera, into the general cavity of the bladder, so that, in fact, these pouches are never free from urine, which, not being expelled, stagnates and decomposes within them, and so becomes a great cause of irritation, leading to an inflammatory state of the adjacent serous membrane. These pouches are probably the sources of the highly offensive ammoniacal pus which appears in some cases only occasionally or intermittingly during life in the urine.

You will find this sacculated condition most marked at the upper part of the bladder in the instance before you; hence the formation of the adhesions and abscess which in the present case were found in that locality. Time will not allow me to proceed any further on this subject to-day. I propose when we meet again to offer a few general remarks on the case you have just heard, and then to take up the treatment of urinary fistulæ, and the operation of puncturing the bladder by the rectum.

Clinical Lectures
ON
INJURIES AND DISEASES OF THE JOINTS.

Delivered at St. Thomas's Hospital.

BY SAMUEL SOLLY, ESQ., F.R.S.

SENIOR ASSISTANT-SURGEON TO THE HOSPITAL.

[*Continued from September No., p. 163.*]

LECTURE III.

The second case is the pure strumous disease of the joint.

George H——, aged five years was admitted into Queen's ward, under my care, December 2nd, 1852, with disease of the hip joint. On admission there was an abscess pointing behind the great trochanter of the left thigh; the limb was not wasted; the toes of the left foot rested on the tarsus of the opposite side, and the knee was turned inwards over the right thigh; there was the cicatrix of an old sinus at the upper and under part of the thigh; the child was of a florid complexion and an intelligent countenance; strumous appearance, with a large head and thick upper lip, but the abdomen was soft, and the child well nourished. The mother can give no connected account of the disease, but states that the child fell down stairs sixteen months ago, but did not walk lamely until four months ago, when the abscess formed. They have not fared well of late; the father died of phthisis, and she had to work for her family.

Dec. 3d.—I opened the abscess, and about six ounces of healthy-looking pus escaped; the swelling was lessened upon the buttock, but still there appeared considerable deformity of the hip—so much so, that many thought that the thigh-bone must be dislocatad. The diseased limb appeared much shorter than that on the opposite side. The thigh was flexed and inverted on the pelvis, and the foot rested on the dorsum of the opposite side. There was a good deal of swelling over the trochanter major, which gave the appearance of an unnatural projection of the bone. But the shortening was only imaginary, not real. On measuring the limb with great care, from the anterior superior spinous process of the ilium to the patella, the length of the limb was as nearly equal as possible, though it did not reach the ground; for the pelvis was tilted obliquely by a slight lateral curvature of the lumbar portion of the spine. The distance from the spinous process of the ilium to the trochanter major was also equal on both sides. The head of the thigh-bone could be felt in the groin, but not so distinctly as on the second side, in consequence of its being thrown into a hollow by the contraction of the psoas, iliacus, and adductor muscles, which contraction is increased by the pain which all pressure on the front of the joint produces. The same conservative and instinctive action of the muscles prevents our rotating the joint, and combines with the other symptoms to give the appearance of dislocation.

The treatment which I have adopted in this case has been very simple. The cod-liver oil has been given internally, and a poultice applied to the abscess.

The possibility of performing any operation has been carefully considered, and this leads me to observe that diseases of the hip-joint have assumed a greater interest in the eyes of the surgeon, since he finds that there are many cases in which the disease may be arrested by operative interference. Disease of the hip-joint was formerly considered a hopelessly lingering complaint, in which the services of the surgeon were of little use; but the advance of science has assisted in detecting the disease in its earlier stages, before the disorganizing process has irremediably destroyed the joint, and rendered all local and constitutional treatment unavailing. It has also been proved that in some cases the disease may be removed by the scalpel and the saw, and a cure may be thus accomplished.

The establishment of this principle in operative surgery has seriously increased our responsibility; for it is not in every case—no, not one in ten—in which any operation could be recommended. It is therefore your duty to investigate each case most carefully, in order to decide whether an operation should be performed or not. One of my objects, in these lectures, is to call your attention to all those circumstances which will assist your diagnosis. It is by no means an easy matter, in these cases, to determine the propriety of operating. Hence the duty of studying with the greatest care and attention the whole subject while you have such a wide field before you as this hospital affords.

The opinion of the profession is still very much divided on the propriety of operating in such cases. The success which has attended Mr. Syme's operation for excising the elbow-joint has naturally directed the attention of the profession to the extension of the same remedial measures to other joints; and though I find Mr. Syme, in his latest publication, stating that "more extended experience has confirmed my conviction, that the shoulder and elbow joints are the only articulations which admit of excision with advantage for caries," and again, "I have now operated on the elbow upwards of ninety times, and with results at most uniformly of the most gratifying kind, &c.," with the greatest respect for this talented surgeon, I still think that it is criminal in the surgeon to shut his eyes to the advantages to be obtained from the judicious application of this operation of the hip-joint.

To Mr. Anthony White, of the Westminster Hospital, is due the credit of having first successfully performed this operation. This he accomplished in April, 1822. There is a very neat account of it in Mr. South's translation of Chelius. The subject of the operation was a boy twelve years of age, who had suffered severely for three years from strumous disease of the hip. The operation was successful in every respect. The boy died five days afterwards, of phthisis, and the parts are deposited in the museum of the College of Surgeons. It is much to be regretted that Mr. South has not favoured the profession with his opinion of the value of this operation.

The practical writers on surgery give extremely meagre advice on this point. Mr. Bransby Cooper, in his valuable work on Surgery (page 321,) simply says, "it is neither difficult nor dangerous, if the period for its performance be judiciously chosen," but he does not assist us in our inquiry what are the cases which justify the operation, or when is the period at which it should be performed. Mr. Skey says (page 393,) "This operation is rarely justifiable, or when performed answers any good purpose. The operation is only indicated in disease of long standing, in which the parts are much attenuated, and when abscesses form about the joint or around the head of the bone."

Professor Miller, of Edinburgh, says ("Practice of Surgery," page 621,) "Till lately, this operation has not had a place in surgery; and it is still begirt with difficulty and danger. As just stated, in a few cases of advanced morbus coxarius, it may be deemed warrantable—when the head of the femur is dislocated, and is causing continuance or aggravation of excitement; when the joint is open, and when there is reason to believe that the acetabulum is comparatively free from disease."

I am glad to see by THE LANCET that my experienced friend, Mr. Stanley, of St. Bartholomew's, whose attention has been so long directed to diseases of bone, has become a convert to this operation, because I know that, with his caution, he would not undertake it without due consideration

Mr. Stanley's patient was a girl ten years of age. She was operated upon on the 24th of January, and she has been going on well ever since. He removed the head of the femur by the cutting pliars.

Mr. Knox, of Edinburgh, who has published an interesting paper on this subject, is in favor of the operation. He says—"To Mr. Fergusson is due the merit, by a series of operations unequalled for a judicious boldness, of proving, not merely the safety of such operations, but their comparative measure of success; he has opened up some important pathological questions, which pathologists had suffered to remain in abeyance for many years."

These operations, it is true, are not uniformly successful, nor always easy of performance; nevertheless, they belong to legitimate surgery, if I may so say. More extended pathological inquiries, by affording a surer diagnosis, will no doubt add still further to the safety of the operation; but they must not, and ought not, to be undertaken rashly, for this it is which has already brought the operation into disrepute. My friend, Mr. Fergusson, for whom I have the greatest respect both as a man and an operating surgeon, has sent me the following note in answer to one requesting his present views with regard to this operation, and also the merit that was due to him for its revival: he says—

"I have had only four cases of excision of the head of the femur in my own hands, and three of them are alive and well; one of the cases has been well for six years. The case now dead survived about eighteen months or two years, and died of enlarged liver. There was an open sinus, however, at the hip, and a bit of necrosed bone lying at the bottom. I did not take away the trochanter in this case, but recommend that it should always be removed, even though quite healthy. Of seven cases which I have recommended, and seen the operations performed, (those including my own four,) five are now alive and well. I do not think, however, that the success with others has been so great; for my own part, I am convinced that the cases eligible for its performance are very rare. Whatever merit or demerit there may be regarding its revival in this country since Anthony White's case, must be attributed to me."

Mr. Lizars, in his useful work on Operative Surgery, gives no opinion to guide the student in regard to this operation.

Mr. Haynes Walton, one of the surgeons to St. Mary's Hospital, took a great deal of pains to collect all the cases which had been published;

and on the 13th of December, 1849, he read a paper on the subject at the Medical Society of London, which unfortunately has never been published in a complete form. On that occasion he gave an account of twelve cases, six of which died, and six recovered. Two others were mentioned, who had undergone operation, but the results of which he could not learn. The conclusion at which he arrived was, that there were cases of hip-joint disease, where the disease was limited to the head of the femur; the acetabulum healthy, or no longer implicated—that is, having recovered, if it had been diseased; the head of the bone dislocated, and lying in a sinus or abscess cavity; the patient sinking from exhausting suppuration, there being no internal disease or other manifestation of local injury than that in the hip; that the removal of the head of the femur would save life. The cases operated on by Mr. Walton are thus detailed by Mr. Knox in the paper referred to :—

"William W——, aged seventeen, came under my care, at St. Pancras Dispensary, on the 21st of February, 1848. He had just been discharged from the University College Hospital. He had the usual symptoms of morbus coxarius. An abscess was opened next day, which discharged about a pint of fœtid pus, with coagula of blood. He had hectic fever, and was much emaciated. Under these pressing circumstances, it was deemed advisable to excise the carious portions of the bone, whatever they might be. If pelvic diseases existed, it possibly might be overcome with the gouge. The operation was accordingly performed on the 24th of March. The caries extended much further down the femur than was anticipated, and I consequently found it necessary to remove, not only the head and neck, but also the trochanters, and with about an inch of the shaft. The condition of the parts operated on was this: the capsular ligament had but a slender hold of the pelvic bones; the head of the femur was also gone; the remaining portion rested against the margin of the acetabulum; this cavity had been denuded by disease of its cartilaginous and synovial apparatus, but otherwise did not seem diseased. I gouged out some portions of the cavity, and they appeared sound. The femoral attachment of the capsular ligament was sound.

"The patient continued to improve for two months, at which time the splint I had used was removed. The discharge had nearly ceased. Two weeks later he could rotate the limb, and raise it a little; later still, he could sit up in bed. In June the limb swelled, and symptoms of general disease for the first time appeared, and he died on the 9th of July, greatly emaciated.

"On examination after death, a few small tubercles were found in the left lung. In the right kidney, all traces of glandular structure had disappeared. An excellent false joint had formed. This boy died, then, of scrofulous disease of the kidneys.

"Case 12.—The last case I have to bring forward—and this includes all with which I am acquainted—was also operated on by Mr. Walton, in the end of October, 1848. The boy was twelve years of age, and had been under his care in the March of that year. The history, as related by Mr. Walton, is briefly thus:—About eighteen months before, all the symptoms of well-marked morbus coxarius came on. Losing sight of him for a time, I found that in the interval he had been under the care of Mr. Syme. This was in August. When I next saw him he was reduced almost to a skeleton, and abscess and fever had done their worst. Soon after, another abscess was opened by me on the inside of the thigh, near the scrotum; from this escaped much fœtid pus and blood. Thus reduced, there remained but one chance for life—namely, an operation; and to this I accordingly resorted. The head of the bone was not dislocated; the neck was divided with the saw close to the trochanters. The acetabulum was bare, and slightly rough in the centre, and more especially where it came in contact with the head of the femur. He suffered but little from the operation. At eight of the same evening there came on a serious hæmorrhage, and before I could reach him he was dead.

"A full inspection of the body could not be obtained, all that was permitted was to examine the inside of the thigh from which the bleeding came. The abscess, it was found, had extended deep among the adductors of the thigh, insulating the great artery and veins from the surrounding textures; where the profunda vein joined the femoral was a small, ulcerated opening, and from this had arisen the hæmorrhage which had destroyed life. Accidental circumstances, then, not necessarily connected with the disease which led to the operation, rendered this measure abortive in both these cases."

With regard to the danger of the operation, Mr. Walton remarks that he has been present at eight of these operations; "that not a ligature was required, and the amount of blood lost was surprisingly small."

The case of Mr. Morris, of Spalding, who sets you an example of what you ought to do, gentlemen, when you go into general practice in the country, is most instructive and encouraging in regard to this operation. His patient was eighteen years of age; inflammation and suppuration of the hip joint followed typhus fever seven years ago; during this period the disease has continued, with short intervals of improvement. The right thigh became three inches shorter than the sound one; the knee inclined over the left thigh; the sole of the foot was turned outwards, the great toe pointing to the ground, midway between the heel and toes of the sound foot, against which it rested; the great trochanter projected backwards, and pressed firmly against the integuments, as if it would burst through; immediately behind and below it there were three fistulous openings, leading to carious bone.

On the 12th of November, 1849, Mr. Morris removed the head of the bone, in which there were four carious cavities; he also removed a sequestrum from the neck, behind the acetabulum. The patient recovered rapidly; and Mr. Morris thus justly contrasts his condition after the operation with that prior to it:—"A perfect freedom from exhausting discharge, hectic fever, and excruciating pain; and instead of a fixed and crippled state of limb, a straight leg, and perfect pliability of hip." The report, November, 1850, exactly a year after the operation, was still more favorable.

You will here see the head and neck of the thigh bone which he removed. To Mr. Haynes Walton I am indebted for the loan of this specimen. You will observe the alteration which has taken place in its shape; it has lost the globular form, and assumed the flattened, mushroom appearance, which has been described under the title of rheumatic enlargement of the bone. All this alteration shows that the disease was not a strumous affection of the bone. It must not then be regarded as a precedent for operating in scrofulous cases; but we have other instances to show the value of the operation, even when the system is laboring under this fearful load.

In diseases of other joints we do not hesitate to remove this disease, though the scrofulous taint is clear and decided. Indeed, we often see that the removal of scrofulous joints so relieves the constitution, that the whole diathesis appears changed. I have seen this repeatedly in regard to amputations of the knee joint; and when we come to this part of our subject, I shall adduce some cases to corroborate my opinion. Symptoms of phthisis have entirely disappeared, with a long continued and enfeebling source of disease.

In my own opinion, the same principles ought to guide us in the performance of this operation as those which influence us to operate or withhold the knife in the treatment of disease in other joints. No surgeon in the possession of his senses, in the present day, for one moment contemplates the performance of any operation until all hope of rendering the diseased joint soundly useful again by other means has passed away. No surgeon proposes to remove a limb unless the disease threatens the life of the patient, and is of such an extensive character, or in such a situation, that nothing but an amputation can remove the disease. For instance, in the treatment of that ulcerative disease of the elbow-joint which has extended beyond the reach of internal medicine or local applications, we remove the diseased surfaces, and the patient retains a useful limb.

Again, in the knee-joint, after having tried in vain to arrest the destructive action and procure anchylosis, we find our patient sinking into the grave with hectic fever, we amputate the limb, and snatch him from the jaws of death. And so we ought to act in the treatment of disease of the hip-joint. If after we have expended all the resources of our art in endeavouring to turn the tide of destructive suppuration, and induce a conservative process, we fail, then are we justified in operating.

The exact extent of the operation no man should attempt to determine beforehand. He must proceed cautiously, and be guided by the state in which he finds the bones, both in the neighbourhood of the joint and in the joint itself, remembering that it is the long-continued suppuration, sometimes going on for years, which is endangering the life of the patient; and this suppuration proceeds from diseased bone. This, then, is the first fact which you must ascertain distinctly before you determine to operate at all. It has been said that you should not operate unless dislocation has taken place, but in this opinion I do not accord. You have already learnt that this operation has been successful in the case of Mr. Morris, of Spalding, and others, where there was no displacement. Moreover, the best surgeons have been deceived in their diagnosis of dislocation. You have also seen that a wasting suppuration endangering life, when the bone remains in the socket, the joint being perfectly sound, may arise from a small carious spot on the trochanter major or the cervix femoris external to the capsule, though the patient has been supposed to be suffering from hip-disease for years. There is no operation in surgery which requires more caution, more coolness, and more consideration during its performance, than this. I know that in one of these cases the head and neck of the thigh-bone were removed, when the disease was limited to a small carious spot on the neck external to the joint.

It has been said that you should not operate if the acetabulum is diseased as well as the femur, but I do not consider that this should deter you if the life of your patient is in danger. It has been clearly proved that disease in the acetabulum has been stopped, and the cavity repaired and filled up, or rather, I should say, the edges absorbed, and thus the cup obliterated, after the head of the bone has been removed from it.

As a general rule, I do not recommend excision of the head of the femur, unless it is dislocated; but this rule must not be applied too exclusively, for the operation has been performed, and with perfect success, when the bone remained in the socket. But if you have to perform the operation you must take care to displace the bone first, which is comparatively easy before you cut through the neck, but very difficult afterwards.

You need not be afraid of nature neglecting the rest of the femur, if I may so express it, after you have removed the head and neck. The modelling power of the absorbents is set to work, the edges are rounded off, and the previously softened bone is repaired and consolidated. In one of Mr. Walton's cases, where the bone was soft at the time of the operation, it was found firm three months afterwards, though the patient died of consumption. Nor is there any want of a capsular ligament in the place of that which has ulcerated away. In favourable cases, a firm, dense sound, fibrous membrane is soon developed, which unites the femur to the pelvis.

I have then no hesitation in recommending this operation to you as one that it will be your duty to perform under the circumstances, and with the precaution I have recommended. Do not rush into it hastily on the one hand, nor timidly reject it on the other, when it is evident that your patient must sink from disease if the surgeon does not remove it. Also remember that if the operation is a legitimate operation in surgery, it is one that, to be useful, must not be delayed too long.

Clinical Lecture
ON A CASE OF
GONORRHŒAL OPHTHALMIA.

By JOHN ADAMS, Esq.,

SURGEON TO LONDON HOSPITAL.

CHAS. M'C——, wire-worker, aged nineteen, was admitted, under the care of Mr. Adams, suffering from gonorrhœal ophthalmia, on March 5th, 1852. About six weeks before, he had contracted gonorrhœa, and he thinks it probable that he had infected his eye with the purulent discharge through the medium of his finger. He had discovered the existence of the disease the day before, by feeling as if he had something gritty, like sand, in his right eye, and had requested others to examine it for the purpose of removing the obnoxious particles. The disease had progressed for thirty-two hours previous to his admission, and had then assumed the following aspect:

Considerable purulent discharge, with eye completely closed from the excessive inflammation of eyelids; tears running freely down the cheeks; cornea quite clear; considerable chemosis of conjunctiva, forming a complete bed for the cornea, and in two parts overlapping it. This was accompanied with great pain in the right eye, forehead, and temples; pulse quick, with strong feverish symptoms and great depression of spirits; the left eye very slightly inflamed; tongue clean.

The following was the course of treatment adopted: Venesection to twelve ounces; calomel and jalap, one scruple, immediately, and afterwards, calomel, one grain; tartar-emetic, one-eighth of a grain, every fourth hour. Lotion: nitrate of silver, eight grains; distilled water one ounce; two drops to be instilled into the external canthus hourly.—Seven P.M.: Pain still great in the temples and head, with increased inflammation of the eye. Ordered, twelve leeches to the eyelids. Pulse 78.—Nine P.M.: Greatly relieved by the leeches; bowels freely relieved.

March 6th.—Pulse 84; pain in the head not so great; bowels open; discharge much diminished; tongue clean; inflammation gradually subsiding. Lotion ordered to be applied every two hours.

7th.—Going on favourably, though the conjunctiva still remains considerably injected; the cornea quite clear, and sight very good. The effects of the calomel being apparent, the pill is ordered to be taken every six hours; the lotion every three hours.

8th.—Rapidly mending; mouth being sore, the pill is discontinued.

19th.—After this the eye resumed gradually a more healthy appearance, but still for a considerable time a pink blush was visible over the surface of the sclerotica, and its aspect was not unlike that presented in rheumatic sclerotitis. This, however, has almost disappeared. The urethral discharge has nearly ceased; but he was ordered copaiba mixture.

The above case affords an excellent illustration of one of the most formidable affections of the eye. The disease is one which, if not very speedily arrested, leads to the entire destruction of vision in many instances, or, its destructive effects being checked by appropriate treatment, it still leaves behind vestiges of its ravages, in the form of partial opacities of the cornea, and much consequent impairment of the function of the eye. Can we, therefore, occupy ourselves better than by briefly referring to the circumstances of this case, and dwelling on the means which in this instance have been successfully put in requisition? I am induced to direct your attention to this case, because we have had lately three similar instances treated in an analogous manner, with slight modification, and all ending satisfactorily.

If you consult authorities on this subject, you will find that all who have written from experience on this disease, as Lawrence, Middlemore, and Mackenzie, agree in the great fatality of the affection: I use the term, of course, as applicable to vision. I believe I am right in asserting that in nearly one-half of the cases mentioned has the issue been destructive of vision by sloughing cornea. The characters of this disease can scarcely be mistaken; there is great chemosis of the conjunctiva, so as to encroach upon the cornea to a greater or less extent; the eyelids are swollen, so that it is difficult to get a view of the surface of the eye; profuse lacrymation and a constant escape of pus or muco-pus from the eye over the cheek, are also present; and all these symptoms are accompanied with constitutional irritation, intolerance of light, pain in the head. One of the prominent signs of the disease, although not a diagnostic symptom, is, at its commencement, the sensation of a foreign body, as grains of sand or dust, in the eye.

The patient is usually the subject of gonorrhœa; but I believe there is no doubt that the disease may be conveyed by the contact of gonorrhœal matter from one person to another; indeed, some deny that an individual can infect himself. In this respect, however, I may tell you that experiments have been made by surgeons themselves, which lead to this conclusion; but I do not think they are to be depended on, for it is well known that some individuals are altogether proof against the gonorrhœal poison. In the case before us, there is good ground for believing that the patient infected his own eye with the discharge from his own urethra; and my opinion is, that the disease is usually induced in this manner. In the case of a little boy under my care some few months back, there was reason for believing that he became infected from the gonorrhœal matter of another person with whom he slept.

The diagnosis of the disease in its acute stage is easy, but in its modified form it may be confounded with common purulent ophthalmia, which prevails occasionally in an epidemic form, and is itself highly contagious. The history of the case will, in a great measure, assist us in the diagnosis. In the latter form of disease, for instance, the inflammation is more confined to the palpebral conjunctiva at its commencement, and is slow in its progress, although frequently destructive in its effects; it also usually attacks both eyes, and this is not common in gonorrhœal ophthalmia.

The prognosis in these cases is, as I have already stated, unfavourable; but if the disease be understood, and active measures be commenced and well carried out, many eyes may, even under the most unfavourable circumstances, be saved from destruction. The treatment must be modified according to the existing condition of the eye; for where the cornea has commenced to slough, active antiphlogistic means are to be discontinued. The treatment pursued in the case just detailed has been successful; it presents nothing new, but we cannot do wrong in reviewing it; and although my own experience is limited, I should have no hesitation in adopting it if another similar case came under my observation.

First, then, if the patient be young, you must take away sixteen or eighteen ounces of blood from the arm, *pleno rivo*. Of course this is inadmissible in old subjects, or where the constitution is much impaired. In a vigorous person you may bleed *ad deliquium*. You are then to apply leeches to the eye, and purge your patient briskly. It is desirable that he should speedily be put under the influence of mercury—not that mercury will of itself cure the patient, for it has over and over again been found to fail. You are also freely to scarify the conjunctiva, to unload the blood-vessels—and not with the view to get rid of the venereal matter, which the old surgeons thought was distending the conjunctiva—or you may snip out pieces of the overhanging conjunctiva. The late Mr. Tyrrell (a very good authority in such cases) advised that the scarifications should be made so as to radiate from the margin of the cornea. He thought that the cornea perished from the strangulation of its vessels, and he adopted this plan to prevent this. The practice is undoubtedly good, although the principle on which it is recommended may not be correct.

But a most important part of the treatment consists in the use of a stimulating application to the eye; and the best method of employing this is to drop a strong solution of nitrate of silver, six or eight grains to the ounce of distilled water, into the eye, and to repeat it every hour, so that its immediate effect may not be permitted to pass off before it is repeated. You should, in order to do this effectually, let the eyelids be carefully separated, and wash clean the surface of the eye by dropping in some tepid water, and immediately afterwards allow a few drops of the solution to fall into the external canthus, so that, by the action of the orbicularis palpebrarum, it may be swept fairly over the whole surface of the inflamed conjunctiva. This must be persevered in until the puriform secretion is entirely arrested, when it will be found that the swelling of the conjunctiva will gradually subside, and the disease may then be fairly said to be cured, although for some time afterwards there will remain some traces of inflammation, which gradually disappear.

It appears to me that in these formidable cases we must trust to a combination of active measures, rather than found our expectations entirely on any single class of remedies.

When, unfortunately, sloughing of the cornea has commenced, all active antiphlogistic treatment must be discontinued; but the stimulating plan, somewhat modified, may be pursued; or the use of an astringent collyrium, as a weak solution of alum, may be employed with advantage; and the constitution being supported by a more generous diet, and tonics, the sloughing process will be arrested, and cicatrization of the cornea may be anticipated, leaving in all probability a very slight opacity.

CASES OF OVARIAN DROPSY.

By T. H. Tanner, M.D., M.R.C.P., &c.

> "The first deficiency which I think good to note, is the discontinuance of the ancient and serious diligence of Hippocrates, which used to set down a narrative of the special cases of his patients, and how they proceeded, and how they were judged by recovery or death."
>
> Bacon, *Advancement of Learning.*

Case 1.—Rosannah F——, aged forty, residing in Soho, came under my care, at the Metropolitan Free Hospital, on the 28th of January, 1848; is a native of Buckinghamshire, but has lived in London many years; has been married eighteen years; her husband is living, and apparently healthy; has had no children by him, though she thinks she miscarried shortly after her marriage; had one child when single; has never enjoyed very good health; is of temperate and careful habits. About six years ago, she fancied that her abdomen began to enlarge; but as she had no pain, and occasionally suffered from attacks of flatulence, she took but little notice of it, and has in fact scarcely observed it until a few weeks since, when she found she was rapidly enlarging, so that she fancied she was pregnant. Her catamenia have always been regular. At the last period but one, they were more scanty than usual; but at the last period, just expired, they have been very abundant. On examination, her abdomen is found much enlarged, measuring thirty-six inches in circumference at the umbilicus; fluctuation is distinct everywhere; there is no hardness perceptible; slight pain is produced by pressure on different parts; the swelling is equally diffused over every region, and the subcutaneous veins are not at all enlarged. Percussion elicits a dull sound over all parts of the tumour, with the exception of a small space at the upper region of the abdomen; no borborygmi or other sounds can be heard on using the stethoscope. She fancies that the swelling commenced more on the right side than on the left; but on questioning her, she appears to know so little about the commencement of the enlargement at all, that I do not think any dependence can be placed on this statement. On examination per vaginam, the uterus, is found pushed down to near the outlet of the vagina, and the cervix uteri is elongated. The urine is rather diminished in quantity, thick, loaded with pale lithates, acid, specific gravity 1020; it is cleared by heat and nitric acid; by the microscope, merely an abundant amorphous deposit of lithate of ammonia is seen. She complains of occasional attacks of pain extending over the abdomen, but never lasting long, nor being very severe; her greatest inconvenience is caused by dyspnœa, which at times becomes very urgent and distressing, and always prevents her lying down.

The diagnosis of this case is difficult, for several reasons; but after some consideration of the symptoms, and of the present condition of this woman, I am led to the conclusion that the disease is ovarian; that is to say, that it consists of a cyst involving or attached to the surface of the ovary, broad ligament, or Fallopian tube. The principal points in favour of this view are, that the enlargement has been coming on slowly and gradually until lately, that her health has not suffered much, and that there are no indications of any disease of the abdominal viscera or of the peritonæum, which would have been likely to give rise to ascites. Percussion gives a dull sound all over the abdomen. except just at the upper part, where we should of course expect resonance, if the intestines were pushed upwards by a tumour; whatever position the patient may assume, the seats of the dulness and resonance remain unaltered. It is not, of course, in every case of ascites that we obtain a resonant sound on percussion, from the floating of the intestines on the effused fluid, as the mesentery may be too short to allow of their reaching the abdominal walls, especially where the ascitic fluid is large in quantity.

During the ensuing twenty days she had a bandage applied round the abdomen, and an attempt was made to procure absorption of some of the fluid by the administration of diuretics and mercurials. No such result, however, followed, and on the 17th of February it was found that she measured thirty-eight inches in circumference, at the umbilicus, being an increase of two inches, that her health was getting worse, and that there was some œdema of the legs. On this day she was seen by the late Dr. R. C. Golding, who, after a careful examination, was undecided as to the exact nature of the disease. She was ordered the iodide of potassium, in three-grain doses thrice daily, with mercurials, administered both by the mouth and by inunction. As the dyspnœa increased and became at times very urgent, I determined to evacuate the collected fluid by tapping, and accordingly did so on the 19th of February, assisted by my friend Mr. Burton, when thirteen pints and a half of a clear, pale, straw-coloured fluid were removed, which was afterwards found to be slightly acid, specific gravity 1012, and loaded with albumen. The abdomen was padded and tightly bandaged with a flannel roller, and she was directed to remain in bed, and continue the iodide of potassium and mercury.

From this time she gradually progressed towards complete recovery; and on the 25th April, rather more than two months after the operation, she was quite well. I have seen her within the last few days, and she remains free from all symptoms of disease, and apparently in perfect health: in fact, she has been well since the operation of paracentesis was performed, now four years and a half ago.

Case 2.—Ellen O'R———, aged thirty, single, a domestic servant, was admitted into the Hospital for Women, under my care, August 7, 1851, with many of the symptoms of ovarian dropsy, attended with great debility. She stated that the enlargement of the abdomen had been gradually coming on for some weeks before her admission, and that it was, at first, most distinct upon the left side; has suffered but little pain; catamenia are regular, and there is a slight leucorrhœal discharge. believe that she was unjustly suspected of being pregnant.

On the 13th of August, during my absence from town, she was seized with a severe attack of peritonitis, for which she was kindly treated by Dr. Protheroe Smith; and on my return I found her merely suffering from increased debility, which was lessened by the free exhibition of wine, with strong beef-tea, &c. The abdominal enlargement, however, had much increased, fluctuation was distinct over every part, and there was dulness everywhere on percussion.

On the 20th of August, there was so much urgent dyspnœa from the abdominal distension, that it was necessary to perform the operation of paracentesis abdominis, which was accordingly done in the usual way; upwards of nine pints of fluid were taken away, to the great relief of the patient. The abdomen was very lightly bandaged, quinine and iodide of potassium administered, and the inunction of the mercurial ointment ordered. On examining the fluid removed, it was found to possess a pale, urinous appearance. and was of neutral re-action, specific gravity 1018, and so loaded with albumen that it became almost solid on the application of heat or nitric acid. This patient remained in a precarious state for some time, but the fluid was not again secreted. She was sent to the Carshalton Infirmary. on November 18th, and returned one month afterwards, much improved; but she subsequently suffered from great weakness, consequent, I fear, on inability to procure sufficient nourishment.

On June 9th. 1852, she called upon me, and there had been no return of the dropsy: she was also in tolerable health.

Case 3.—Elizabeth R——, aged fifty-two, married, admitted into the Hospital for Women, under my care, November 27th, 1851. Had one child many years ago; has not been pregnant since; catamenia ceased six or seven years since, until which time they were always regular, though scanty. Some years back—at least seven or eight—she noticed that her abdomen was becoming enlarged, that the enlargement was uniform, not more on one side than the other, and unattended with any pain. This swelling or enlargement progressed slowly, but in four years from its commencement had become inconvenient from its size, though by no means as large as it is now. Twelve months since, it began to be painful, became much larger, and caused her much anxiety; but she has had no advice, she says, until the present time.

At present, her appearance is that of a woman advanced to the full term of pregnancy. She is much emaciated, her complexion sallow and unhealthy, and her countenance anxious. The abdomen is much distended by a large tumour, extending from the pelvis to the diaphragm. It is hard, but fluctuation can be readily distinguished, though not so sensibly as to lead to the supposition that the cyst is a single one. There is dulness on percussion over every part of the abdomen, except beneath the false ribs on the left side. On the right side only is there any pain or tenderness on pressure. She measures twenty-two inches from the ensiform cartilage to the pubes, and forty-five inches in circumference at the umbilicus. She suffers much inconvenience from the size of the tumour, and occasionally has severe attacks of dyspnœa.

She was ordered the iodide of potassium, laxatives, and nourishing diet, with porter, &c.

On the 8th December, Dr. Protheroe Smith saw this patient with me, when, after a careful examination, it was agreed that the tumour was ovarian, that it was probably a multilocular cyst, and that the effects of palliatives, diuretics, &c., should be tried before attempting any operation. The usual remedies were accordingly resorted to, but without giving any relief; and as the dyspnœa occasionally became very urgent, I determined to withdraw as much of the fluid as I could by tapping. This was therefore done on the 19th December, when I removed, assisted by Mr. Scott, twenty-seven pints and a half, or nearly three gallons and a half, of dark coloured fluid, which was afterwards found to have a specific gravity of 1020, and to be loaded with albumen. Contrary to our expectations, the cyst was found to be of the unilocular kind, with very thick walls, which could be freely felt through the abdominal parietes; it had evidently contracted no adhesions, and the sac, on being emptied, could be traced into the true pelvis; it appeared to arise from the right ovary. A bandage was tightly and evenly applied, and she was ordered two grains of calomel with a little opium every six hours.

On the 26th December the report was as follows:—Has not had an unfavourable symptom since the operation, from which she has derived the greatest relief. On removing the bandage, the abdomen was found resonant on percussion over every part, except over the right iliac fossa. The bandage was re-applied, she was ordered meat diet, and to take the calomel twice a day. To avoid being tedious, I may briefly state that on the 12th January, 1852, she was apparently well, but rather weak; that she was sent to the Carshalton Infirmary, and that on the 12th February she returned to London, saying that "she was quite well, and never felt better in her life." On examination, I could find no trace of the disease.

This woman called at the hospital on the 21st June, and stated that she was quite well, and had got a situation as cook in a gentleman's family, where she was able to work hard. As I gave her particular directions to call upon me if she discovered the least symptoms of a return of the fluid, and as she has not done so, I think there can be no harm in inferring that she remains well.

CASE 4.—Mary Anne H——, aged fifty-six, single, char-woman, applied to me as an out-patient at the Hospital for Women, January 7th, 1852. Her catamenia ceased eleven years ago, since which time she thinks her abdomen has been enlarging; but as she has suffered no pain or annoyance until the last three years, she cannot speak with much certainty. Lately she has increased so much in size that she has been unable to do any work; she suffers no pain, but finds her breathing somewhat difficult. She appears emaciated and weak, though she has lived well, obtaining a much better livelihood than most of her class, as she has the care of lawyers' chambers. On examination, the abdomen is found distended by a large uniform tumour, in which fluctuation can be felt, though not very distinctly at all parts; there is dulness on percussion everywhere, except just below the ribs. She measures forty-one inches in circumference at the umbilicus, and twenty-one inches from the ensiform cartilage to the pubes. She was ordered the iodide of potassium, with mercurials, in alterative doses, and subsequently the liquor potassæ in large doses. This treatment, however, was of no avail; and as she was urgent to have something done for her relief, I determined to tap her, and on the 1st of March proceeded to her lodgings, accompanied by Mr. James Rice, in order to do so. No difficulty arose during the operation, and nearly two pailfuls of a dark, grumous fluid were removed, with much relief to the patient. She was then bandaged tightly, and put upon the iodide of potassium again, with mercurials.

On the 31st of March the report stands thus:—On examining the abdomen to-day, I found the right ovary, or a cyst attached to it, enlarged to the size of the fœtal head at nine months, so that the sac is evidently refilling. Under these circumstances, she was ordered to discontinue the medicines, and allowed nourishing diet, with wine and beer. On the 12th of April she was nearly as large as before the tapping; and considering that she would soon be worn out by the disease if nothing further was done, I proposed to extirpate the diseased mass, to which she readily consented. On the 22nd of April, assisted by Mr. Rice, Mr. Hulme, and Mr. Greenhalgh, I proceeded (the patient being under the influence of chloroform) to remove the cyst, by making an incision three inches in length through the abdominal parietes, commencing about two inches below the umbilicus. Having opened the peritonæal cavity, and passed in the index and middle fingers of my right hand, to ascertain the absence of adhesions, a trocar and canula were plunged into the cyst, and a large quantity of chocolate-coloured fluid evacuated. The collapsed walls of the sac then advanced, and gradually protruded through the wound; but as there was apparently some solid matter at the lower part of the cyst, the incisions had to be enlarged to admit of its extraction. This being done, the whole of the tumour was drawn out of the abdomen; and a ligature of strong twine having been placed around the pedicle, the latter was divided, and the mass removed. On examining the pedicle afterwards, there appeared to be a little sanguineous oozing; another ligature was therefore tightly applied below the first. The left ovary was found to be healthy. The edges of the wound were then brought accurately together, and interrupted sutures applied at about the distance of half an inch from each other; the two ligatures around the pedicle were left hanging out at the lower part of the wound; no strapping or bandage was applied—merely a strip of wet lint. The patient vomited towards the end of the operation, and appeared much depressed by the chloroform; she soon rallied, however, and was drawn into the bed. Her pulse was 90 just before the operation, and 100 afterwards. Very little blood was lost. The temperature of the room was raised to 75° F., and this degree of heat was subsequently kept up for the ensuing two or three days. Two grains of solid opium were administered, and she was allowed a small quantity of ice to check the thirst and nausea. Two hours after the operation she complained of feeling chilly; her skin was cold, and the pulse had fallen to 54. She soon became warmer, however, after taking a teaspoonful of brandy, and being covered with a couple of blankets; and at eleven o'clock P.M. she was in a gentle perspiration, free from pain, and inclined to sleep, with her pulse beating 100. About half a pint of urine was withdrawn by the catheter, in order to avoid the necessity of altering her position, and one grain of opium administered; the wound was dressed with water-dressing.

On the following morning, at eight A.M., she stated that she was very comfortable, having passed a good night, and being free from pain and uneasiness. The tongue was moist, rather furred; pulse full, 120. Half a pint of healthy-looking urine was withdrawn by the catheter. To have one grain of opium again, and to take nothing but the ice. During the day, the opium pill was repeated, and she was allowed a small teacupful of gruel; and in the evening she was found very easy, having passed her urine voluntarily, and with her pulse 126. She took another pill, and a little more gruel.

On the 24th of April she was reported as doing well, having again passed a good night; her pulse was 120. During the day, she took some gruel, a cup of cocoa, and about twenty drops of brandy, in a little iced water, every two hours. At night, she had a pill containing one grain and a half of opium.

April 25th.—Doing very well; no pain or tenderness; pulse 120. Removed half of the sutures, and applied some strapping. To have a grain and a half of opium powder at bed-time.

26th,—Progressing favourably; bowels open this morning naturally; pulse 120, rather weak. Removed the remaining stitches; the wound appears healed. Applied some strapping, and a bandage. To have some beef-tea, and a teaspoonful of brandy, every four hours.

27th.—Is not so well to-day: she has been sitting up in bed, and exerting herself more than she ought to have done; the consequence is, that the wound has gaped a little, and it is necessary to introduce some fresh sutures; her bowels have also been relaxed this morning; she is very weak; pulse 120, feeble. To omit the ice and brandy, and to have a wine-glassful of port-wine every six hours, mutton broth, &c. During the day, she took three grains of opium.

28th.—Is better; bowels have not been open since yesterday morning; wounds looks healthy. To have a boiled sole for her dinner. One grain and a half of opium at bed-time.

From this time the amendment continued to increase, her appetite improved, and she rapidly gained strength, so that on the 10th of May, eighteen days after the operation, she was enabled to leave her bed. On the 21st of May, one of the ligatures came away from the pedicle; and in a few days the second was withdrawn; after which the wound firmly healed. On the 11th of June, she went into the country, and returned to London on the 14th of July, quite well and strong. She has since resumed her ordinary duties, and a few days since expressed herself as being in perfect health.

Dissection of the Tumour.—To avoid any interruption in the preceding remarks, I have delayed until now the description of the tumour. This consisted of a large cyst, capable of holding three or four gallons of fluid; of a second cyst about the size of the fœtal head at the full term of pregnancy, situated at the root of the first, and imbedded within its coats; and of a group of small multilocular cysts, very numerous, clustered around the second cyst, varying in size from a pea to a grape, and filled with a thin, urinous-looking fluid. The second cyst, instead of containing fluid similar to that in the other sacs, was filled with a thick, gelatinous material, so that at first it appeared to the touch as if composed of solid matter. On dissection, the large cyst was found to consist of three coats, an external, formed by the peritonæum, a middle fibrous, and an internal firm coat. On its external surface, at its lowest part, about seven inches of the Fallopian tube was seen, one extremity terminating in the corpus fimbriatum, the other in the part where the pedicle was divided, the divided surface being about two inches in length. The second cyst was composed of three coats like the first, but they were separated with greater difficulty, in neither case could I subdivide the third or internal coat. The smaller sacs seemed to be formed of only one thin lamina, easily ruptured.

The above cases have been so fully detailed, that I do not consider they call for any especial remarks. I trust, however, that they may be deemed worthy of record, if only for the purpose of adding to the statistics which have been collected of this disease; and with the view of rendering them more valuable in this respect, I would mention that they form all the cases of ovarian dropsy in which I have performed any operation whatever, the other instances of this affection which have been under my care not admitting of any operative proceeding of any kind, but merely of such slight alleviation as could be procured by drugs.

ON TOPICAL MEDICATION

IN THE

TREATMENT OF DISEASES OF THE MUCOUS MEMBRANE OF THE AIR-PASSAGES.

By Horace Green, M.D.,

Professor of Theory and Practice of Medicine in the New York Medical College.

I was much interested in reading the report of a discussion which took place in the London Medical Society, on "Topical Medication in the Treatment of diseases of the Pharyngo-Laryngeal Membrane," which has been reported in a number of the American reprint of the London Lancet.

With most sincere thanks to the gentlemen of that Society, who did me the honour to allude with approbation to my efforts made to advance this branch of practical medicine, I must beg the privilege of making some remarks upon one of the questions which occupied their attention during this discussion—namely the practicability and safety "of introducing a sponge-pointed probang through the rima glottidis into the trachea, and down to its bifurcation." Several of the members present expressed their conviction that this operation cannot be performed, and one or two had "arrived at the positive conclusion that an instrument cannot be passed with facility and without danger below the rima glottidis" even.

When, in 1840, I brought before the Medical Society of New York the subject of the treatment of diseases of the larynx, by means of the direct application of therapeutical agents to the lining membrane of the cavity, and asserted the safety and utility of their employment, the proposition was received by a very large proportion of the profession with entire incredulity, many of them declaring that "to apply topical remedies below the epiglottis was an anatomical impossibility." It was soon found, however, that topical medication was a method of treatment most appropriate to certain forms of laryngeal disease; and thinking, practical men were not slow to adopt a plan that was found feasible and successful in the management of these affections. Consequently, such a mass of testimony was soon accumulated on this point, that the most incredulous were obliged to admit the practicability and the benefit of the operation. But when, in the publication of my work on "Diseases of the Air-passages," in 1846, the statement was made that when tracheal disease existed, the sponge-armed probang could be passed, ordinarily, without difficulty, through the rima glottidis, down to the bifurcation of the trachea, and that the operation in my hands had been repeatedly performed, the "old fogies" of the profession were again shocked and alarmed; the possibility of this operation was positively denied, and, in unmeasured terms, "Young Physio" was abused for having suggested such "unwarrantable and dangerous innovations in the practice of medicine." Still, those physicians who had succeeded in passing the instrument into the glottis ventured, in cases of aphonia, or in ulcerations of the tracheal mucous membrane, to push the sponge through the glottic chink into the trachea, and down to the bifurcation; and it was found that this operation was not only facile and safe, but one of the greatest advantage in some of the above conditions of disease. The question, therefore, of the practicability of this operation was no longer a mooted point, and I can assure the gentlemen of the Medical Society of London that I have succeeded in passing an armed probang down to the bifurcation of the trachea, probably over five hundred times; and this has been done in the presence of half that number of medical men, all of whom, if required, will give their testimony to the fact. In no case have I seen any injury arise from the operation.

In most cases, however, of disease of the laryngo-tracheal membrane, it is only necessary to pass the sponge into the larynx; for the contraction of the glottis, which takes place on the introduction of the instrument, presses the fluid from the sponge, which trickles down, and is diffused over the tracheal membrane. But whenever ulcerations of the tracheal membrane exist, I have found it exceedingly advantageous to pass the sponge, saturated with a strong solution of the nitrate of silver, along the whole length of this tube. In cases where I have had reason to believe that ulcerations of the membrane had extended below the bifurcation, I have employed a probang nearly straight, armed with a sponge, and have pushed this instrument, not only down to the division of the trachea, but turning it aside, *have passed it at will, in many instances, into the right or left bronchus, with as much ease and safety as the catheter is introduced into the bladder.*

That the members of your Society may have no doubt upon this point, I will give briefly the details of one case, in the treatment of which this operation was performed many times in the presence of several eminent medical gentlemen of this city, who attended from time to time at my office expressly to see the operation.

In January, 1849, Mr. A——, a young clergyman from Canada, who was suffering from laryngeal phthisis, came under my care. He had been affected for several years, and was much emaciated. A very troublesome cough, which was attended by a constant expectoration of pus, was present. Complete aphonia had existed for more than a year. On examining his throat, the epiglottis was found much thickened, and its border serrated with ulcerations. Topical medication, with appropriate general treatment, was employed. Applications of the nitrate of silver were made, first to the epiglottis, then into the larynx, and subsequently, through the rima glottidis, into the trachea. Under this treatment the patient improved rapidly; the cough and expectoration diminished; and after a few weeks of treatment there seemed to be present but little indication of disease in the larynx or trachea. Still some degree of cough remained, and the aphonia was as complete as in the commencement of the treatment.

All along the patient had complained of a sore spot directly under and below the right clavicle, and this remained after the improvement I have mentioned had taken place. Believing that ulceration existed in the bronchial division at this point, I determined to reach it with the caustic applications. Selecting a long and nearly straight probang, and directing the head of patient to be thrown well back, I passed the instrument into the trachea, and carrying it down to the bifurcation, turned it a little to one side, and pushed it nearly two inches into the right bronchus. On withdrawing the sponge, it was found covered with pus; and Mr. A—— remarked that "the right spot had been touched for the first time." This operation was repeated daily for several days; and as soon as the ulceration at this point had healed, which took place after eight or ten applications to the part, the voice of the patient, which for a twelvemonth had been lost, was restored.

I have this day, (June 8th,) in the presence of two physicians, the one a practitioner in this city, and the other from Ohio, passed the sponge-probang, wet with a solution of nitrate of silver, of the strength of forty-five grains to the ounce of water, through the trachea, and quite two inches below its bifurcation. In this case the patient is himself an intelligent physician, and no doubt whatever existed in his mind, or in the minds of those present, as to the nature and extent of the operation.

In the *New Hampshire Journal of Medicine* for April, 1852, is the history of a case, reported by Dr. E. R. Peaslee, professor of anatomy &c. in Dartmouth College, which well illustates the *capacity* of the human larynx to receive foreign bodies of considerable size into its cavity. The details of this case, which is one of great interest, are given at length by Professor Peaslee; but I will only allude, with much brevity, to the principal points in the case. The patient, who was a well-made, robust man, aged about forty-four, having lost the cartilaginous and also a part of the bony septum of the nostrils, from a scrofulous affection, was in the habit of introducing a piece of moistened sponge into the nasal passages several times a day, to remove the fœtid secretion produced by the still progressing disease just mentioned.

On the 23d of July, 1850, while applying the sponge as usual he accidentally let it slip from his fingers, and it passed back at once through the posterior nares. A paroxysm of coughing, with considerable dyspnœa, at once ensued; and Dr. Peaslee, being hastily sent for, saw the patient a few minutes after the accident occurred. He at once passed his finger into the pharynx, expecting to dislodge the sponge; but failing in this, and being assured by the patient that he felt the sponge lower down in the œsophagus, he explored that part, with the long curved pharyngeal forceps, and thus ascertained that it was not in the pharynx at all. On questioning the patient as to the precise size of the sponge, he declared to Dr Peaslee that it was "as large as half a hen's egg." As he was a man of accurate judgment, and was positive as to its size, and moreover, as his breathing became easier, and his cough ceased almost entirely, Dr. Peaslee assured the patient that if his estimate of size was correct, it was "almost an anatomical impossibility," that the sponge could be in the trachea, for if there, the air could not pass so freely to and fro in the tube, as it did at that moment. Still, supposing that the sponge was lodged in the œsophagus, or had passed into the stomach, an emetic of ipecacuanha was administered, which removed the contents of the stomach, without dislodging the sponge. But the difficulty of breathing at once returned, and the patient declared he could again feel the sponge at the bottom of the pharynx. An œsophageal bougie was now obtained, and passed slowly into the stomach, without encountering the least obstruction, excepting a very slight impediment which was met with for a moment just before the instrument slipped into the stomach. But the patient again breathed quietly, and said, now I can feel it in my stomach."

Dr. Peaslee being obliged to leave his patient to fulfil a consultative engagement with a physician residing in a neighbouring town, left directions that his colleague, Dr. Crosby, should be immediately called, if the dyspnœa and cough returned. During the afternoon and the following night, the paroxysms of dyspnœa and cough returned several times; the respiration became more difficult, and Dr. Crosby was called in, who, after passing the bougie into the stomach, without finding the sponge, concluded with Dr. Peaslee, that it must be in the trachea; its precise location, however, could not be ascertained by placing the ear over the trachea or chest, but as the respiratory murmur was found to be diminished throughout the whole of the right lung, and as this side was also less distended on inspiration than the other, it was concluded that the sponge was at length engaged more especially in the right bronchus. The necessity of practising an operation was now quite apparent, and it was determined to perform it about ten o'clock on the morning after the occurrence of the accident.

The incision was made into the trachea by Dr. Crosby, in the manner ordinarily practised in this operation. The hæmorrhage was very profuse, and being drawn freely into the trachea, at each inspiration, "filled the tube from the sponge up to the incision, and thus completely asphyxiated the patient." It was quickly removed, however, by Dr. Peaslee, and an attempt made, with a long forceps, to remove the sponge, but the mass was so firmly impacted that great difficulty was found in accomplishing it. The first and second attempt brought away, at each time, only small portions of the size of a pea, but the third removed the whole mass, as it was supposed at the time. After its removal, the usual means for exciting the respiratory movements were employed, when the patient at length breathed, and in a few minutes was able to answer questions. But the hæmorrhage again returned some hours after the operation, filling up the trachea, and obstructing respiration; and although it was several times removed from this tube, yet the patient became comatose, and died fifty-three hours after the operation.

The respiratory organs only were examined. The *larynx* was well-proportioned, but in no respect abnormal. The *trachea* was inflamed throughout. "A patch of inflammatory exudatian just above the bifurcation, equal to about a square inch in extent; embedded in which, and upon the left side, was a piece of sponge about the size of a common white bean, and so adherent as to detach the membrane when removed."

In concluding, Professor Peaslee thus remarks:— "This case finally settles the question—if anybody still has any doubt—of the possibility of passing a sponge through the rima into the trachea in the treatment of tracheal disease. The sponges used by Dr. Horace Green for that purpose, are about half an inch (generally less) in diameter. The one I actually removed was more than fourteen times as large as one of these; and the whole mass at first was at least *fifteen or sixteen times as large.*"

On measuring the mass of sponge removed by the operation, it was found to be even larger than the patient had said. "Another piece cut out as a fac-simile of it, but found on accurate comparison to be somewhat thinner and *smaller*, is, when moistened, one inch and three-quarters long, one inch and a quarter wide, and fifteen-sixteenths of an inch thick; all this in addition to the three small pieces detached from the original, as before said."

It is quite time, Mr. Editor, that the medical profession generally should be made better acquainted with the very great advantages which may be derived from an appropriate combination of topical with general remedies, in the treatment of many forms of disease of the respiratory passages.

Not only in chronic, laryngeal, and bronchial disease, but in membranous croup, in asthma, in œdema of the glottis, and in the earlier stages of *tubercular phthisis*, topical medication has proved, in my hands, not only palliative but *curative*, in many instances, in all these varieties of disease.

I am fully aware of the clamour many in the profession are ever ready to raise at the bare suggestion that any plan of treatment will prove remedial in the last-named disease; but, after a long and quite an extensive experience in the treatment of diseases of the air-passages, I am fully confirmed in the opinion, that in many instances of tubercular affection, complicated with, or preceded by, follicular disease of the pharyngo-laryngeal membrane—and such cases are much more numerous than the profession are generally aware of—we have it in our power to arrest the disease by the persevering employment of topical measures conjoined with appropriate general treatment.

REMARKS ON

THE EFFECTS OF CLOTHING ON CUTANEOUS EXHALATION.

By Hayes Kyd, Esq., M.R.C.S., L.S.A.

The relative effects of woollen and water-proof clothing, with reference to cutaneous exhalation, are well illustrated in the following manner.—

Let a person in bed be covered with sufficient blankets to promote perspiration, and let these be covered by a mackintosh, or other impervious fabric. In the morning, the blankets will be found dry, but the mackintosh will be as damp upon its under surface as if it had been immersed in water.

In this case, the dryness of the blankets proves that the perspirable fluid has not been retained by them; and conversely it is apparent that, having passed through their medium, it would have escaped into the surrounding air in an insensible or volatile form, but meeting with an impervious texture, it could pass no further, and became, therefore, condensed from the form of an insensible and invisible vapour into that of palpable humidity.

If this should occur during sleep, when the powers of the body are passive, the circulation slow, and the secretions retarded, *à fortiori*, it must take place more forcibly and conspicuously when the circulation is roused by active exertion.

I think, therefore, the deduction is inevitable that the habitual use of an impervious covering is injurious. Its effect must be to place the body in a constant vapour bath, in which the insensible or healthy perspiration is constantly becoming condensed into the form of humidity, and being prevented from passing off in its elastic and invisible form, or, as it is commonly expressed, the perspiration is thus constantly checked; and I have no doubt that this effect would be found to be medically illustrated by the production of herpetic and other papular eruptions, which derive their origin from checked secretion from the surface.

If, however, we are to consider the relative effects of these two classes of clothing under the influence of external moisture, such as a heavy shower of rain, it is quite clear that the conditions will become reversed, and we must regard the subject from another point of view.

In the first place, it is evident that the physical property which renders cloth favourable to the transmission of the perspirable fluid—viz., its porosity—will render it a powerful absorbent of external moisture.

It is true that cloth may be woven so close as to resist the contact of water for a long time, but this very faculty must impair its property of transmitting evaporation from the surface of the body—in fact, its power of resistance to external moisture must be in an inverse ratio to its permeability by the perspirable fluid.

We are, then, to consider two persons subjected to the action of a shower of rain of similar force, during an equal period of time,—the one clothed with an ordinary cloth coat, the other with an impervious covering. The coat of the first, if exposed sufficiently long to such an agency, will have imbibed a very considerable quantity of moisture, perhaps even to saturation; whilst that of the latter will have resisted all external impressions. The result will be, that whilst the one is "wet through," the other will be dry.

It may be said, however, that the wearer of the Mackintosh, although apparently dry, has been subjected to a vapour-bath of his own condensed steam; and that, although his coat is not wet externally, it is damp internally, from this same intercepted and condensed vapour. This would undoubtedly be the state of things under a close-fitting waterproof coat, in which the perspiration is, as it were, hermetically sealed; but it must be borne in mind, that as soon as cloth becomes saturated with moisture, its pores become filled up; therefore it is no longer a porous substance, and therefore no longer permeable by the insensible perspiration; and common experience proves that the effect of an ordinary great-coat, worn during walking exercise, and especially in wet weather, is to create a vast amount of perspiration, which, practically, does not escape through so imperfect a conductor of caloric as cloth. Under these circumstances, condensation must occur—the insensible perspiration being rendered sensible—and with the disadvantage of being in closer contact with the surface of the body.

On the other hand, supposing that the waterproof garment was made, as it usually is, very light in substance, it would not have so great a tendency to promote perspiration by generating artificial heat; and therefore its negative effect would be absolutely to supersede excessive perspiration.

The relative subsequent condition of the two persons, however, will be greatly in favour of the wearer of the impervious garment, who will enjoy a perfect immunity from damp clothing, and will have thus superseded the necessity for the drying process, to which the wearer of the cloth coat must be subjected. This process can only be accomplished by evaporation; and if the coat is still worn, it must be at the expense of a vast amount of animal heat, which will be rendered latent or insensible in the form of aqueous vapour,—this sudden abstraction of vital warmth giving rise to what is commonly called a "cold" or a "chill," and being frequently followed by rheumatic affections; and even when the coat is removed, it is hardly possible that saturation can have gone on to any considerable extent without imparting moisture to the under-clothing.

I think, therefore, it is a fair inference from the conditions stated, that the waterproof covering is preferable in a sanitary point of view. The latter may be so formed as completely to protect the wearer from the access of rain, (as regards the upper part of the body,) and yet allow of a free circulation of air around the body,—thus admitting of free evaporation, and so obviating the injurious effects of condensed cutaneous exhalation.

GOUT AND TRISMUS FOLLOWING INJURY OF THE FOOT.

By J. M. Salter, Esq., Dorset.

Mr. H——, a respectable yeoman in the neighbourhood of Blandford, Dorset, met with a severe accident on the 23rd of December last. His left foot was caught in a thrashing-machine, by which the fore-part of his boot was torn away, together with the extremities of three of his toes as far as the first joints. Having removed the portions of crushed bone and lacerated integument, I formed a flap over the stump of the great toe, and dressed the parts in the usual way. There was scarcely any hæmorrhage; the foot was very pale and numbed. His age being more than seventy-three, I of course anticipated a troublesome case, and told him there was danger of tetanus or trismus, although from my past experience at home and abroad I felt sure of being able to bring him through safely, and preventing the trismus (should it occur) from being fatal; but a great deal would depend upon my directions being strictly adhered to. The accident occurred about four P.M. At six P.M. I gave acetate of morphia, a quarter of a grain; calomel, three grains; powder of rhubarb, three grains: divide into two pills, to be taken directly. About nine P.M. I gave the following mixture:—Epsom salts, one ounce; potassio-tartrate of antimony, two grains; infusion of senna, six ounces and a half; syrup, one ounce; aromatic spirits of ammonia, three drachms: to have three tablespoonfuls every four hours until the bowels are moved. That night the sleep was excellent, a nice moisture on the skin, and the next day he could not feel that anything had occurred to the foot.

The next night I repeated the pills of morphia, which produced the same sleep and moisture as on the previous night; but the next morning tetanus made its appearance in the extremities, followed by symptoms of trismus. He complained of great lassitude, and considerable pain and difficulty in moving the jaws; the countenance assumed a cadaverous appearance. I gave him muriate of morphia, a quarter of a grain; powder of rhubarb, three grains, in form of a pill, to be taken directly. I then administered a good strong glass of brandy-and-water; an hour after, a dose of cordial mixture, with aromatic spirits of ammonia, and repeated the brandy-and-water three or four times in the course of the day, with the mixture as above.

On the fifth day, gout made its appearance in the right foot, and trismus again set in. The morphia-and-rhubarb pills were repeated, with brandy-and-water, as before. The gout left the foot, and attacked the stomach, at the same time the patient complaining of great pain in the jaws. Nitrate of potash, a drachm and a half; wine of colchicum, three drachms; aromatic spirits of ammonia, three drachms; powder of rhubarb, ten grains; syrup, an ounce; add water to six ounces; two tablespoonfuls to be taken every two hours. By the third dose relief was procured, and he felt perfectly free from pain.

During the first three or four days there was a little hæmorrhage, but nothing of importance. There was considerable sloughing, and the fœtor was intolerable. On the seventh day symptoms of gangrene, and a white line reaching from the toes to the ankle. Having cleansed it with warm water, I applied tincture of lytta to the sloughs, and poultices saturated with black-wash. At night repeated the calomel-and-morphia pill. Next day another severe attack of the jaws came on. Repeated the morphia-and-rhubarb pill, with brandy-and-water, and giving the aperient mixture. Slept well. On the ninth day all the symptoms of trismus had disappeared, and he felt his jaws as well as ever; the pulse soft, full, and regular; spirits cheerful; system quiet. Being excited by some unexpected visitors that day, considerable irritation followed, and the trismus appeared again the following day, but was subdued by the repetition of the former remedies, and he slept comfortably that night. On the tenth day he was composed, but had a little delirium, and while sleeping comfortably about two in the morning was seized with tetanus in his arms and legs, which awoke him; it then seized the jaws with greater violence than before. The morphia pills were repeated, with the aromatic spirits of ammonia, two drachms, in a mixture, at intervals, and during that day he took nearly a pint of brandy. The foot assumed a more unhealthy appearance, more gangrenous, and the line to the ankle more apparent; pulse small and feeble; tongue coated and feverish. Gout returned during the day; hiccup and delirium. The morphia pills were repeated three times that day, with the aperient mixture. His foot was held over a foot-pan with water nearly boiling; a larger cloth, five times doubled was dipped in the water, and applied to the foot; this caused much pain, but was continued for an hour. The patient was easier after, and the hot water was repeated in the evening; and at bed-time, calomel, three grains; powder of rhubarb, three grains; acetate of morphia, a quarter of a grain: make a pill, to be taken immediately. He had some sleep; hiccup diminished; delirium less; tongue and pulse the same as in the day.

January 3rd, 1852.—Was evidently better in every respect, but he complained occasionally of pain and inability to move his jaws, which he did for some time afterwards. Some days he felt as if he had never been affected; on others, very strong tendency to absolute trismus. I continued at intervals the pills, the gout mixture, and the brandy, regulating his bowels with the aperient mixture above. Living near him, I had every opportunity of watching him closely, and attending to every symptom as it occurred; and I had the satisfaction of seeing him walk half a mile by the latter end of the month with ease. Being fond of walking, he continued his exercise, and in March could travel four miles on foot without feeling any inconvenience, and now continues his usual exercise in good health.

CASE OF PLACENTA PRÆVIA.

By George Bennett, Esq., M.R.C.S. Eng., Sydney.

During the practice of my profession in Sydney, New South Wales, since 1836, and having during that period an extensive midwifery practice, I have only met with five cases of placenta prævia; in the whole of these cases I invariably detached the placenta previous to the delivery of the child, considering it conduced to the safety of the mother by removing the more urgent and dangerous symptoms. In the whole of the cases, the patient recovered without any unpleasant symptom; but the children were still-born, excepting in the last case, the subject of this communication. In the whole of the cases, the presentation was natural.

The objection made by my medical colleagues was, that by such a mode of proceeding it afforded no chance of saving the life of the child; but the great facility it afforded of arresting the more urgent symptoms, and placing the mother in comparative safety, overruled, in my opinion, the objection; for those members of the profession who have witnessed the alarming state of the patient when called to a case of this description, will recollect that the first thought which arises in their mind is, by what immediate remedy can the life of the mother be saved? and of course by arresting the hæmorrhage as rapidly as possible, the latter object is attained. The case I now bring before the profession proves, however, that by adopting the primary detachment of the placenta, and effecting an immediate and rapid delivery, the life of the child may also be preserved; for in this case I consider, the child being small and the delivery effected with unusual facility and rapidity, the preservation of the life of the infant may be attributed to that circumstance.

On the 20th of May, 1851, about nine A.M., my immediate attendance was requested in an urgent case, in consultation with Dr. M'Vitie, the messenger stating that his wife was dying from flooding; but no labour had yet come on. On my arrival, I found the patient (Mrs. B——, aged twenty-seven,) lying pale and cold, the pulse weak, and scarcely perceptible, but perfectly sensible; the uterine contractions were very feeble. For the last week it appears she had been subject to occasional floodings, but not to such an extent as to occasion any alarm, until this morning, when, with slight uterine pains, the hæmorrhage became so profuse as to alarm the patient and her friends, and induce them to send for their medical attendant. On his arrival, seeing the urgency of the case, he requested me to be called in consultation, and I was immediately sent for. On examination, I found the vagina full of coagula of blood, and could just feel the edge of the os uteri a little open, but soft and dilatable; and I thought I felt something like the placental mass near the edge of the os uteri, but it was too high to enable me to determine positively. Considering the case, from the symptoms, to be a case of placenta prævia, and at all events the state of the patient requiring immediate delivery, we explained to the woman and her friends the urgent nature of the case, and the necessity of immediate delivery to save her life. Their consent was readily obtained; and after administering stimulants, I proceeded to deliver her immediately. On passing the hand up the vagina, and reaching the os uteri, I found the placental mass lying over it, and firmly attached over the inner portion of the left side, occupying half the portion of the os uteri. I proceeded to detach the placenta, which being completed, and the os uteri being perfectly dilatable, as I expected from the previous hæmorrhage, I ruptured the membranes, found the presentation natural, grasped the legs, and brought them both into the vagina, and assisted also by slight uterine efforts, the child was soon expelled. Observing signs of vitality in the infant by a few convulsive gasps, I placed it, still attached to the placental mass, into warm water, and proceeded to resuscitate it by the usual means, and succeeded, after the interval of a few minutes, in making it cry vigorously. The mother during the day remaining weak and exhausted, but by the administration of quinine and ammonia, aided by light nourishment at intervals, on the following day I had the gratification of seeing her cheerful and stronger, with her living infant in her arms. She gradually recovered her strength, and by the termination of her month was in excellent health and strength, and nurses her infant well. The child proved strong and healthy, and remains so to this day. The child was a female, and the mother had previously had two children.

Sydney, Feb. 10, 1852.

On my relating this case, a few days since, to my friend William Bland, Esq., one of our oldest and ablest practitioners in the colony, he furnished me with the following result of his experience, which I considered of sufficient importance to request him to convey it in his own words, in consequence of which he sent me the following letter:—

Sydney, Feb. 13, 1852.

My Dear Bennett,—In cases of placenta prævia my practice, for upwards of twenty-five years, has been as follows:—Without the least violence, but, at the same time, with the least possible delay, (that is, as soon as the dilatation or dilatability of the os uteri would permit,) to separate and extract the placenta—

a handbasin of warm water about 98°, having in the meantime been prepared immediately to receive it. By the first part of this measure the safety of the mother was secured; by the latter part of it the child. The following were, with me, the grounds of the above prompt and decisive interference:—1st. The imminent danger of the case, which, if anything could be done, brooked no delay. 2nd. The conviction that the complete, early, and rapid, though cautious and gentle, separation of the placenta from the uterus, was the readiest and most certain means of allowing the placental vessels of the uterus to contract, and of thus at once arresting the hæmorrhage, while, in furtherance of the same object, by the extraction of the bulky mass of the placenta, with the consequent complete evacuation of the waters, the utmost attainable contraction of the uterus itself could as promptly as possible be ensured; while, again, by the immediate immersion of the placenta on its extraction in the tepid bath prepared for it, the circulation between the fœtal portion of the placenta and the fœtus would be promoted and ensured during an ample period of time for the completion (whether by art or otherwise, and with or without the aid of medicine as the case might require) of the delivery of a living child.

I will only add, that whether the above theory be correct or not, the result of it in practice has far exceeded my most sanguine expectations.

Believe me, my dear Bennett, yours most sincerely,
William Bland.

QUESTIONS FOR MEDICAL JURISTS.

By Robert Molloy, M.D.

Did death in the following case result from the effects of a burn, or from the effects of scarlatina?

At the commencement of the past year I was hastily summoned to see a child in my immediate neighbourhood. It was the case of a boy, five years of age, who had received an extensive burn, and the account given to me was, that during the temporary absence of his mother, the boy had stepped in front of the grate to ignite some lucifer matches. Most unfortunately it happened that the fender had been removed to clean the hearth; there was, therefore, no obstacle to his approach. While the mother was coming up-stairs on her return she heard a scream, and almost immediately after, met the poor little fellow at the top of the landing, with his clothes in a blazing condition. She had the presence of mind to extinguish the flame by wrapping the table-cover round him, and then proceeded to examine the injuries he had received, and cover him with flour. Of so little importance did she deem this accident,—not from indifference certainly, for she was a kind, considerate woman, but from simple ignorance,—that it was only at the earnest persuasion of an acquaintance that she consented to my being sent for. I found on examination all the left arm much and severely burnt, involving the whole of the cutis at the wrist, above and below the elbow, but deepest in the former situation, over the body of the biceps and insertion of the deltoid. The burn had likewise extended very generally over the chest, the deepest part behind, over the posterior border of the scapula, while in front it was continued from one side of the chest to the other, and presented a large and rough surface, although fortunately superficial. The child was but partially dressed at the time of the accident, and had on a long-sleeved cotton nightgown, covered by a stout flannel petticoat, which was of essential service in resisting the flame, and preventing the trunk from receiving so much injury; still, the mischief, deep and extensive, was sufficient to warrant the most grave apprehensions, and the instant conviction which flashed across my mind was, that it was necessarily mortal. This prognosis was indeed verified in the sequel; but in a manner very different from what I had anticipated. On the second day after the receipt of the injury, an eruption of scarlatina made its appearance, extending in the usual manner, but much more thickly and copiously; the tongue, too, bore ample testimony to the eruption, by its characteristic, and colour vivid, elongated papillæ. During this period the poor little fellow seemed unusually well, sitting up in bed, playing with his toys, and partaking freely of the nourishment which was permitted. The exanthem came to its close, desquamation followed, and at the seventh day from the accident he began to fail. He was restless, uneasy, out of spirits, and had difficulty of swallowing, the result of inflammation of the throat. This went on to occasion slight oppression of the breathing, increasing congestion of the lips and cheeks, and he died on the ninth day, evidently in consequence of the extension of the inflammation to the tissues around the larynx, and its necessary sequel—slow asphyxia.

Remarks.—In this case, we have presented to our notice a singular and unusual complication, which cannot fail to invest it with the highest interest, and respecting which different views have been entertained by several medical friends to whom it has been mentioned. What was the cause of death? Some have asserted it to be the burn; others believe it to be either the inflammation, nervous exhaustion, or suppuration consequent upon it, as the essential and primary cause; but the value of such opinion is not self-apparent. In all cases of burns there are three periods of danger—the first, of shock to the system, which, however, is past when complete reaction has taken place; the second, of internal inflammation, which immediately succeeds to this; the last of exhaustion produced by profuse suppuration. The condition of this poor little sufferer was intermediate between the two latter stages. Not the slightest sign of inflammation had manifested itself, although carefully and daily looked for; and the dead portions were not sufficiently separated to cause any great systemic loss or necessary mischief. Consequently it could not be said that death resulted from the burn. It must be borne in mind, moreover, that at the time of the receipt of the injury, the scarlatinous poison was present in the blood, and thus being antecedent as a cause, would of necessity have developed itself under any circumstances. Was this, then, the occasion of death, or would he have died if the coincident injury had not been received? We have evidently no data to solve this question, and it is not, therefore, over-wise to speculate upon, or even entertain it. My decided opinion was, that death resulted from the inflammation of the throat and surrounding parts consequent upon the intercurrent scarlatina; and that the burn was to be considered as an additional cause of depression, not in itself directly tending to a fatal result—in the same manner that, under any given circumstances, death would more surely follow from a combination of causes, than from one cause alone.

The end and object of a coroner's inquiry being the discovery of the cause of death, it is obviously of much importance that the true cause should be ascertained; and this could not have been effected, in the present case, without medical testimony. A body with a burn upon it sufficiently extensive to destroy life, would have appeared satisfactory even to a jury of physicians, and it would have seemed unnecessary to pursue inquiries further—more especially, too, as the exanthem had left no external traces by which its presence could have been suspected. From this and many corresponding cases, the conclusion may fairly be drawn, that no inquiry before a coroner should ever take place without the necessary, and, indeed, indispensable, presence of a medical man, from whom alone real, trustworthy information can be obtained. The present mode of dispensing with their attendance, from economical motives, together with the practice followed to some extent of accepting the certificates of extra-professional, unqualified, and consequently incapable men, is fraught with much disadvantage and injustice to the profession at large, and tends not only to vitiate the conclusions presented to us in the Registrar's report, but materially to shake our confidence in any existing statistical tables.

Death produced by extravasation of blood in the brain. What was the cause of the excessive vomiting in connexion with profound coma?

The next case which I consider worthy of remark is that of a woman about forty-three years of age, whom I was called to visit one evening at half-past seven. I was told she had been taken suddenly ill an hour before, with feelings of sickness and faintness. On my arrival, I found her sitting on a couch, with her clothes loosened, frothing at the mouth with a peculiar blowing expiration, but sensible; and, in reply to my question whether she suffered pain, and where, she placed her hand over the stomach. The symptoms appeared to me so exaggerated, and I was so well aware of the peculiar capabilities of the landlady—an old alarmist—for making up a case, that I regarded it simply as an hysteric attack, and, after ordering her to bed, a mustard poultice to the chest, and some aperient medicine, I withdrew. At ten o'clock an urgent summons reached me, and on again presenting myself a very different condition of things was apparent. She was in a state of most profound coma, from which no stimulus could rouse her in the slightest degree; slow pulse, warm skin, moderately contracted pupils, inability to swallow, but with frequent attacks of vomiting. The account received by me in reply to minute inquiries, was the following:—About an hour before I was sent for the first time, just when she had finished tea, the landlady and herself were looking out of window, laughing and much enjoying a puppet-show which was exhibiting near them; while thus engaged, she suddenly sat down, complaining of faintness, which afterwards continued to increase. My suspicions pointed to poisoning, and were in some measure confirmed by the peculiarity of her personal history. She was separated from her husband in consequence of having been detected by him in an act of infidelity, and the only one of the family who kept up any friendly relations with her was the son, a youth about eighteen years of age. She was occasionally visited by her paramour, and was understood to have gone through much trouble and distress of late. The house, too, in which she lived was not certainly bad, nor yet indeed good, but simply indifferent. Her son had seen her on the day of the attack, and, it was surmised, had been the bearer of bad news, as she had cried much when he was present, and appeared greatly troubled; and, lastly, she had been a hard drinker of spirits.

An examination of the contents of the stomach, which had been retained in the hand-basin, and on some towels, revealed glistening modulated masses of pork-fat, the scaly tegument of shrimps, and pulp of greens, which were precisely what she had partaken of in the course of the day—cold pork and greens for dinner, the shrimps with tea: but nothing to satisfy the suspicions of poisoning, nor did the most careful search of her pockets, drawers, or of various parts of the room, bring to light bottles or packets of any description. The landlady, too, did not consider her a likely woman to entertain a suicidal intention; but the persistence of the vomiting determined me to use the stomach-pump, and I was very glad to avail myself of the able and judicious advice of my friend, Mr. Powell, of Garnault-place, who kindly assisted me throughout. The stomach was carefully and thoroughly evacuated, but still nothing appeared which would add strength to or even justify these suspicions; advantage, however, was taken of the use of the instrument to inject some brandy-and-water into the stomach. The bowels were unloaded, by repeated injections, of an immense quantity of fæcal matter, which inundated the bed, and more resembled liquid mud in the streets of London after a heavy April shower, than anything I have yet seen; the temporal artery was opened, and counter-irritation kept up by continuous mustard applications to the calves of the legs, breast, and between the shoulders, until death, which occurred at six in the morning; the vomiting having persisted to the last moment, with scarcely any intermission.

Post-mortem Examination.—In external appearance the body was that of a thin, petite, but prettily-figured woman. The trunk was first examined. In the stomach was contained half a pint of dark-green fluid, evidently the solution of greens, of which she had partaken; but no inflammation, abrasion, or even congestion of any description whatever; it was in every respect perfectly healthy. The liver was a fair specimen of the nutmeg kind, and well corroborated the account of her history that she had drunk considerably; on its convex surface were numerous strong bands attaching it to the parietal peritonæum; these, however, were of old date, and obviously had nothing to do with the symptoms, nor afforded any explanation of death. This was equally true of the other viscera, which were generally healthy, and from their inspection no clue whatever could be obtained. The examination of the head was now looked forward to, and undertaken with considerable interest. *Here* the cause of death was at length satisfactorily accounted for, by the discovery of a large clot of blood in the left ventricle; this clot was estimated to weigh three or four ounces, and was traced through Monro's foramen into the right ventricle, from thence into the third ventricle, and it eventually extended into the fourth, and was sufficiently tenacious to permit it to be withdrawn nearly whole. My suspicions were roused, strengthened, and kept up by the continuous vomiting of which this woman was the subject. I have never previously seen or known of a case in which it so particularly co-existed with such profound coma; and although the examination has very satisfactorily revealed the cause of death, it has by no means explained to my mind the singular and unusual persistence of this symptom.

THE COTYLEDON UMBILICUS IN EPILEPSY.

By J. Grieve, M.D., Dumfries.

We no longer live in a rude, but in a very credulous age, every succeeding year ushering in its new remedy for incurable diseases, which though not so revolting as of old, are, I fear, of equal ineptitude. This remark applies to many of the therapeutic agents lately vaunted for their efficacy in the treatment of epilepsy. Among many others, we have the cotyledon umbilicus, or common navel-wort, which grows on our rocks and old walls. This herb being introduced to the notice of the profession on respectable authority, I was induced to give it a fair trial in six cases of epilepsy, taking due care that the medicine was genuine, and prepared by the best chemists in London, and I regret to add, without the slightest evidence of its having exercised any beneficial effect whatsoever on any of my patients; so that I am constrained to regard the navel-wort as an useless weed, to be ranked with the mistletoe of the oak, lady's-smock, biting stone crop, and other "frivolous things," not to speak of the warm blood of a gladiator just slain, the dung of birds, the hoofs of quadrupeds, and other *delicacies* of a by-gone age.

My experience leads me also to report unfavourably of the nitras argenti. One of my patients, a lady, had been subject to epileptic attacks for nearly twenty years, and who, like too many of her class and sex, a "prey to every pragmatical relative or acquaintance, or volunteer prescriber," was provoked to make a trial of it, without taking the necessary precautions against its probable disfiguring effects, and her complexion now looks, to use the graphic language of Dr. Thomas Watson, as if she had been thoroughly and carefully pencilled over with plumbago, and unfortunately without curtailing the duration or mitigating the urgency of the paroxysms.

In cases of centric epilepsy, when connected with, or dependent on, disease of the brain, or the cranio-spinal axis, I consider it is hopeless to look for a *cure*. My experience, however, enables me to speak in favourable terms of the ammoniated copper pill as a palliative; and I think its efficacy is increased by conjoining it with the extract of Indian hemp, as in the following formula:—Take of pill of ammoniated copper, of extract of Indian hemp, of each a drachm. Divide into twenty-four pills. Take one three times a day.

FATAL CASE OF VARIOLA COTEMPORANEOUS WITH VACCINIA.

By Robert Fowler, M.D., Edin.

Resident Medical Officer to the Loughborough Dispensary.

On May 10th, I vaccinated Sarah Ann A——, aged six months, and saw her again on the 17th, when the mother stated that on the Thursday previous (the 13th) the child seemed as if it had taken cold, and she gave it a powder from a druggist; on the day following the child was very sick, and on the Saturday morning papulæ appeared on the face, extending, on Sunday, over the whole body.

May 17th.—The child is very restless; the eyelids œdematous and closed; the whole face swollen and marked with small vesicles no bigger than those of herpes, coherent, with central depression and surrounding redness; arms, legs, and body present these minute vesicles, some smaller than a pin's head, especially in the vicinity of vaccinia; vaccine vesicles flattened and lobulated at the edges, transparent, with the central depression, but no areola or surrounding hardness; pulse feeble and quick; tongue dry, and coated with a dirty ash-coloured coat. Ordered a calomel-and-rhubarb purge to be given immediately, and the following mixture:—Saline mixture, two ounces, syrup of poppies, two drachms; one drachm to be taken every four hours. As much farinaceous diet as it will take besides the breast.

18th.—Less restless; face less swelled, and interstices of eruption not so red; eruption, both variolous and vaccine filling out.

19th.—Able to open the eyes a little; some of the vesicles on face becoming pustular.

20th.—Whole face becoming pustular; vaccinia and variolous eruption elsewhere still vesicular; very restless, knocking its muffled hands about, and continually trying to rub its face. Add four minims of tincture of opium to the mixture, and take one drachm every hour.

21st.—Died at five A.M.

The general progress of the disease, in this case, seems to have proceeded to its fatal termination uninfluenced by the co-existence of the vaccine virus, the nervous system of a child six months old being quite unequal to the overwhelming force of the poison; nevertheless there are one or two points of interest in the symptoms which do not deserve to be passed over in silence. Firstly. In this case, the vaccinia was evidently modified, the vesicles, instead of being prominent and circular, were flattened and lobulated at the edges, presenting the appearance as if studded round their margin with smaller adherent vesicles; but from carefully examining them I satisfied myself that they were not distinct and separate vesicles, but actual projections of the vaccine vesicle itself. Secondly. The smaller size of the variolous vesicles in the immediate neighborhood of the vaccinia was also remarked; the child was generally on its back, and the appearance was observed on *both* vaccinated arms, and not on the legs; therefore it seems probable, that although the incubation of the variolous poison in the blood was able to prevent the contamination of the *whole* system by the vaccine virus, yet the latter was enabled, by an extension, as it were, of its local influence, to modify the vesicles of the former in its immediate vicinity. This supposition would countenance the theory, that during the period of incubation of an inoculated poison, the virus lies dormant in the part, and that it is not until after the appearance and existence for a certain time of the eruption, that the system becomes contaminated with the protective or other influence of the disease; thus vaccinia would at first be a local eruption, and, indeed, all practical men know that though perhaps communicable during the first few days of the existence of the vesicle, the protective power of the virus cannot thus early be equally depended on; and probably Bryce's test would not succeed, even in true vaccinia, if employed in *less* than four or five days after the first vaccination. So, also, with the venereal poison; it being now pretty generally admitted that a chancre may be treated as a local sore a few days after its first appearance, without any fear of secondary symptoms.

CASE OF RANULA, SUCCESSFULLY TREATED ON THE PRINCIPLE OF MECHANICAL PRESSURE.

By William Macdonald, M.D.

Lecturer on the Practice of Physic, Glasgow; and formerly Lecturer on the Institutes of Medicine, Portland-street Medical School, etc.

Nearly seven years ago, J. F——, aged twenty-two years, and residing in M—— Street, in this city, consulted me in consequence of being much distressed with a ranula, or a large tumour under her tongue, arising from an accumulation of saliva and mucous in the ducts of the sub-lingual gland. For two years after the period this person consulted me, she was attended both by my professional friends and myself, and that without success. During these two years that this patient was under the surgical and medical treatment both of my medical friends and myself, the following methods of cure were adopted in succession:—The ranula was very often opened with a lancet, and injections of rose-water and sulphate of zinc (five grains of the sulphate to the ounce of rose-water) injected by means of a syringe, night and morning, into the cavity of the emptied ranula. Occasionally, when the ranula burst of its own accord, and left an ulcer, considerable portions of the sub-lingual gland were dissected out, and on one occasion the actual cautery was proposed to be employed, but the patient would not consent to the employment of this method of treatment. During the two years the patient was under treatment she took occasionally tonics and alteratives, together with laxatives, as the nature of her case seemed to require, but without any good effect.

In these critical circumstances it occurred to me, about five years ago, that if the fluid contained in the ranula were completely evacuated, the employment of pressure over the tumour might cause adhesion of almost all the internal surfaces of the tumour, except a fistulous aperture or apertures, analogous to the sub-lingual duct, through which the saliva would necessarily flow, and by necessary consequence a radical cure would be produced, provided that a permanent adhesion of both surfaces of the ranula could be effected.

In order to produce such a result, I proceeded to perform the following operation. (I must remark that the size of the tumour at this period was such as to preclude the possibility of swallowing any fluid or solid kind of food.) I introduced a bent needle, armed with a ligature, into the ranula, with the view of enabling me to render the tumour steady while I was opening it with the lancet, and also in order to direct me afterwards in injecting the ranula; this being done, I procured a common musket-ball of lead, a little flattened, and having a perforation through it, and through this perforation in the bullet I introduced a yard or so of common tape, which was loosely tied around the neck of the patient, while the bullet remained in the patient's mouth, and pressed by gravitation upon the upper covering of the ranula. It is obvious that the tape fixed to the bullet served only the purpose of preventing the patient from swallowing the bullet while it remained in her mouth. The bullet thus kept in the patient's mouth night and day for two weeks, produced union by inflammation (caused by mechanical pressure) of both surfaces of the ranula, except two fistulous apertures analogous to sub-lingual ducts, through which saliva has flowed on each side of the frænum of the tongue ever since; and this patient has happily had no return of her troublesome complaint from that period to this date. Now, as nearly five years have elapsed since the cure of the ranula, we may hope that the disease will not again return.

Should this method of treating ranula meet with the favourable consideration of the profession, and be equally successful in the hands of other practitioners, the author will be well satisfied with the treatment he adopted.

ON THE

TREATMENT OF POPLITEAL ANEURISM BY PRESSURE.

By W. K. Swettenham, M.D., Surgeon 44th Regt.

I beg to submit for insertion in The Lancet the undermentioned case of popliteal aneurism, which has been successfully treated at Gibraltar Rock, under the pressure plan, affording an additional example of the triumph of art in surgery. The instruments employed were those invented by Mr. Read, of Dublin, and delineated in Dr. Ferrall's paper on Popliteal Aneurism, in the second volume of the *Dublin Quarterly Journal*, from which plates the pelvic instrument was constructed by a blacksmith on the station, for a case of the disease which occurred in a regiment some years previously. The *lower* instrument, or circular compressor, was made at the same time, consisting merely of a screw-shaft through the anterior ramus of the instrument, to which was attached a covered cork pad. My patient, Henry S——, aged thirty-two, able-bodied seaman of H.M. ship *Phaeton*, first applied, on the morning of the 10th of July, at sea, to Dr. White, surgeon of the ship. On examination he found a pulsating tumour in the left popliteal space, then about the size of a pigeon's egg, spheroidal in form; pulsation strong, and evident to the eye, having a distinct *soufflet* audible. He was sent to Gibraltar for treatment, from the squadron, in the *Fury*, with a tourniquet on, this being the only pressure attempted. He was admitted into the Naval Hospital at Gibraltar on the 12th of July, (the sick of the fleet being temporaily under my charge.) He is a fine, healthy-looking young man; states that he has served in several line-of-battle ships, and always enjoyed good health; was not aware of any swelling in the left ham until the forenoon of the 9th of July, but had aching pain in the left leg for four or five nights previously, which came on gradually when in his hammock, and which he attributed to rheumatism; is positive that he received no injury, and can assign no cause for the disease, except that the ship was exercised the two days previous. On admission, a tumour was visible in the left ham, about the size of a small orange, soft to the feel, and having a strong pulsation and loud bruit audible; the circulation through the sac was controlled by pressure of the finger on the artery in the upper third of the thigh.

On the 15th of July, the instruments at hand above alluded to were attempted to be adjusted; but being found in many respects objectionable, and requiring some alterations, were not re-applied until the 21st, when both the pelvic, or upper instrument, and the lower, or circular, were put on at the same time, with the thigh kept slightly bent on the pelvis, and the leg on the thigh, resting on a pillow. The pressure was first commenced on the pubis. He was duly instructed as to the *modus operandi* of the cure, and directed that when the pain became severe he was to relax the upper, and screw on the lower instrument, which was left lax on the thigh at the upper third. During the first and following day, he was unable to bear the pressure of either instrument for a longer period than half an hour to an hour—sometimes less; and experienced considerable pain in the calf of the leg, as well as along the tibia. It was, however, remarked that he bore pain unusually long; and being an intelligent man, he controlled the circulation by the feeling of pulsation in the tumour, which he was sensible of, and which he was cautioned not to obstruct completely.

On the 22nd, he says he passed a restless night, from pain in the knee; but towards morning he relaxed the instruments, and slept; a slight turgescence of the veins around the knee being only perceptible when pressure was put on. The temperature of the limb is not much lower than the opposite; it has a flannel roller applied. The pressure throughout this day was kept up regularly and alternately with the two instruments, and at no period entirely obstructing the pulse in the tumour, or discontinuing pressure. He had each night, from the 15th, half a grain of acetate of morphia, and eight drops of tincture of digitalis, as a draught.

23rd.—The tumour is sensibly harder, and a few turns of the screw of the lower instrument easily controls the circulation through it. The pressure from the pad in Scarpa's angle has irritated the integuments, and the lower instrument was moved down, and pressed on the artery in the middle third of the thigh. This enabled him to bear the instrument on a much longer time; and being without sleep, he observed the pressure having regularly and completely controlled the pulse in the tumour during this night.

In examining the limb on the morning of the 24th, I relaxed both instruments, and found the pulsation of the tumour quite ceased; nothing more than a *fremitus* perceptible. The instruments were kept on the thigh, with but slight pressure, to ensure safety, for the two successive days. The tumour felt hard, and he complained only of stiffness in the knee-joint. The temperature of the limb was somewhat less, but no œdema whatever occurred, nor was there any lividity visible during the whole period of pressure.

26th.—The tumour is perfectly solid, and diminished in size; feels no inconvenience but rigidity of the limb, and his health has in no way suffered.

31st.—Is walking about the ward, able to extend the limb, and place his weight on it; surface of the tumour painted with iodine; and gentle friction is relieving the rigidity.

Aug. 13th.—Still in the hospital; the tumour in the ham is not larger than a Spanish filbert; has perfect good use of the leg; the pulsation of the femoral artery felt to the inferior third of the thigh, likewise in the collateral branches; is in very good health, but the heart's action has been feeble throughout; and upon minute examination of the aorta in the epigastric region, a *soufflet* is audible, distinct from the heart's action; from which fact it is my intention to invalid him from the service, the fleet at present lying in the Bay.

ON CARBUNCLES AND BOILS.

WITH ESPECIAL REFERENCE TO THEIR PREVALENCE AS AN EPIDEMIC.

BY THOMAS HUNT, ESQ., F.R.C.S.,

Surgeon to the Western Dispensary for Diseases of the Skin, etc.

(Concluded from October No., p. 269.)

ALTHOUGH the furunculoid epidemic has probably proved the least fatal of all modern epidemics, evidence of its destructive character is not wanting. Carbuncle is unquestionably its most fatal form; and though it is a comparatively rare disease, yet, when it does occur, it is generally severe, often perilous, and not unfrequently fatal. The average annual amount of deaths from this disease, in the course of the last twelve years, will therefore, when compared with the deaths from this cause, during the epidemic, enable us to form a tolerably accurate estimate of its origin, progress, and duration.

Upon a most careful examination of the annual and weekly "Reports" of the Registrar-General, as regards the deaths from carbuncle in the metropolitan districts, the following very remarkable results are obtained:—

In the four years 1840, 41, 42, 43, the average deaths from carbuncle were	3½	per ann.
In the four years 1844, 45, 46, 47, they averaged	8	"
In the four years 1848, 49, 50, 51, they averaged	18	"
In the last qr. of 1851, nine deaths occurring, they averaged . .	36	"
In the first qr. of 1852, sixteen deaths occurring, they averaged . .	64	"
In the second qr. of 1852, five deaths only occurring, they averaged .	20	"

Making a trifling deduction for the increase of the population during the last twelve years, which has probably been nearly counterbalanced, during the epidemic visitation, by the rage for emigration, it appears from this table, that the deaths from carbuncle have actually been *doubled* every four years from 1840 to 1851; and that during the last quarter of 1851, the average of that year was again doubled in the three months: and that on the following quarter—the first of 1852—it was again doubled on the last quarter of 1851; and that whereas the average deaths from carbuncle in the metropolis, have amounted, in former years, to about five or six per annum, the actual number during the last six winter months, was twenty-five, or about nine or ten times the usual number. It appears that the fatality commenced rather suddenly, so early as the year 1847, and continued, with little variation, for four years; for—

In 1846	there were	registered	3	deaths,
" 1847	"	"	15	"
" 1848	"	"	20	"
" 1849	"	"	15	"
" 1850	"	"	19	"
" 1851	"	"	19	"

A very rapid increase occurred during the early part of this year. On the 10th of January, there were no less than four deaths from carbuncle, all the victims being males bordering upon seventy years of age. The circumstance of four deaths from carbuncle occurring in one day, is remarked upon by the Registrar-General as an unusual occurrence; and it is probable that no such event has happened in London since the last visitation of the plague.

From these records, it would appear that the epidemic has existed in London for four years at the least, and that it arrived at its greatest severity in January, 1852. The next question is, have we seen the worst of it? The following table will help us to a conjecture on this point:—

Single months, 1852.

In January	there were	registered	8	deaths,
" February	"	"	4	"
" March	"	"	4	"
" April	"	"	3	"
" May	"	"	0	"
" June	"	"	2	"

If, therefore, the course of this disease is to be expected to follow that of other epidemics, it may be believed to be on the decline in the metropolis; but when we reflect that it has already existed four years or more, we shall not be disposed to arrive at any hasty conclusion, founded on the history of only as many months.

The *pathology* of this epidemic appears to be involved in some degree of obscurity, but its whole history points to one striking peculiarity—viz, *a tendency to the formation and discharge of* PURULENT MATTER; *this tendency being confined to the* SURFACE *of the body*. And this is curiously confirmed by the fact, that, while the deaths from "abscess" appear to have diminished in number during the prevalence of the epidemic, that term being applied generally to lumbar, or other deep-seated collections of matter, the deaths from "phlegmon" appear to have more than trebled their usual number during the last few years—this term being employed to denote superficial inflammation generally, tending to suppuration.

From Philadelphia, accounts have reached us of the great prevalence of superficial abscesses and whitlows, as well as carbuncles and boils. And as regards the pustule or small boil, another very remarkable circumstance should not be overlooked. The small-pox is a febrile disease, consisting of an eruption of pustules, and often terminating in very troublesome and unmanageable boils and superficial abscesses, as sequelæ of the disease. Now, it cannot be viewed as an indifferent question—Has the small-pox prevailed with any unusual degree of severity during the existence of the furunculoid epidemic? To this question the Reports of the Registrar-General return a satisfactory reply. During the last twelve years the average annual deaths from small-pox in the metropolitan districts are recorded as follows:—

	Per annum.
1840, 41, 42, 43, average	771
1844, 45, 46, 47, "	981
1848, 49, 50, 51, "	924
Last quarter of 1851, 339 deaths; rate .	1356
First quarter of 1852, 338 deaths; rate .	1552
Second quarter of 1852, 472 deaths; rate .	1888

From this table it appears that there had been no remarkable increase of small-pox until within the nine months terminating at Midsummer, 1852, during which period it steadily advanced until it doubled its average number of victims. Nor can it be doubted that the number of cases occurring after vaccination has recently been very much on the increase. Vaccinated persons, previously exposed with impunity to variolous contagion, have recently taken the disease; and whatever be the cause, there evidently exists, among all classes of society, a most remarkable susceptibility to the variolous poison.

Here then are two distinct epidemics running a race with each other, having only one feature in common—viz., a disposition to superficial pustulation. Is there any instruction to be gained by the study of this curious analogy? Does an epidemic tendency to suppuration predispose to the contagion of a specific disease? In the hospital at Vienna, Dr. Mauthner reports that cases of variola and eczema impetiginodes were often observed during last winter. The latter disease had several points of resemblance to variola. Vesicles were formed, filled with a turbid purulent fluid; these were developed into pustules, and finally desquamated. In several cases rigors occurred on the ninth day of the vesicles. Here is another link in the chain. The vesicles of eczema do not usually degenerate into pustules, nor are they followed by critical rigors; and there must have been some cause at work to bring a multitude of these cases together in one hospital at one time. Another remarkable circumstance is mentioned by Dr. Mauthner:—Where a marked predisposition to scrofula existed, the disease promoted its development; *but it freed the body from local scrofulous affections already existing.* In accordance with this, is the general experience as to the health of patients subsequently to an attack of the furuncular or anthracic form of the disease. It has almost invariably improved. There is no "wise saw" more familiar than that "boils are healthy"—i.e., they have a healthy tendency; and it is certainly confirmed by the history of the present epidemic, which may be said to have arrested attention, not so much from its immediate morbific influence on the vital economy, as from the local disturbance created by the process of elimination. The improvement in the condition of the health of those patients in whom this process has terminated favourably, is not less remarkable.

It is to be regretted that so little is known of the design and uses of the secretion of purulent matter. A general impression exists that its absorption is injurious to the economy, and that its discharge is eliminative and salutary. The opinion is also gaining ground, that under certain morbid conditions of the blood, a vicarious discharge of pus from the kidneys is one of the modes by which nature seeks relief. Dr. Golding Bird assures us, that "many pathologists, especially in Germany, have declared their belief in the frequent occurrence of this phenomenon, and cases have been recorded of empyema disappearing contemporaneously with the discharge of purulent urine."* We must, for the present, remain in ignorance of the precise condition of the blood in which the formation and discharge of purulent matter are useful to the system. But the history of this epidemic, taken in connexion with the prevalence of small-pox and the pustular form of eczema, may possibly throw some important light upon future researches.

The *treatment* of carbuncles, boils, whitlows, superficial abscesses, and other forms of the furunculoid epidemic, is generally so simple an affair, that it is scarcely discoursed upon, except in elementary works on surgery, and then the instructions are considered complete if directions have been given for a free discharge of the matter; and under ordinary circumstances, this is sufficient, so far as surgery is concerned. But the epidemic type introduces a new element into their pathological character, and this involves the necessity of well weighing the condition of the constitution under the epidemic influence, before deciding upon the course to be pursued, which, after all, can only be learned by observing the symptoms and complications of the disease in a large number of cases. For the most part, epidemics are wont to defy the resources of medicine and surgery; they hold their accustomed force with such fearful tenacity, as often to leave it doubtful whether the efforts which have been made to arrest their progress have not rather given it an increased impetus. But I am persuaded that these furunculoid diseases may be much modified, and their course materially checked, by the adoption of active and energetic measures. To this end both surgery and medicine may each contribute an important share.

Surgical Treatment.—Carbuncles and boils differ from each other in more points than one. The seat of both is the cellular membrane, but the pathological structure is very different. A carbuncle is composed of cells, which, without communicating with each other, contain a thick, viscid, purulent matter, which escapes slowly from its capsules, even after they have been incised. A boil is simply an abscess, at once superficial and circumscribed. A carbuncle, to borrow a term from the modern school of ovariologists, is a multilocular abscess located in the cells of the cellular membrane. It first appears as a rounded tumour, not so large as a split pea, less tender and less vividly red than the nucleus of a boil, sluggish and livid, yet daily increasing in circumference and in tenderness, until it becomes exceedingly painful and sometimes enormously extensive. After a few days, a yellow spot presents itself on its surface, soon followed by another. One bursts, and slowly discharges a viscid pus, in which a black speck is sometimes visible, denoting the death of a particle of fatty matter as the *fons et origo* of the whole disturbance. The patient is relieved, rejoices in escaping the surgeon's threatened incision, and gets a few hours' rest, but only a few. Another pustule appears on the surface of the tumour, and not the surface only, but others form below and on every side. The inflammation extends, a livid erysipelatous blush surrounds the tumour, and now, if the surgeon does not do his duty, the patient is not unlikely to become delirious, and to sink under the constitutional irritation set up by the local disease. Every one of these small abscesses must be opened, and for this purpose a free crucial incision is generally required, which should be long rather than deep, the matter being contained for the most part in superficial cells. On the following day, the carbuncle generally looks worse, though he patient complains less. An extensive and formidable slough of the cellular membrane and subjacent parts often occurs; and that surgeon will now be the most successful who is the best physician. The surgical treatment, however, is still important. Poultices of yeast or stale beer-grounds, or of linseed-meal moistened with very dilute chloric ether, are necessary to promote the separation of the slough, and to rouse the living structure to healthy action for its own defence. This once effected, the patient is safe, and his recovery rapid.

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* Urinary Deposits, p. 331.

A *furuncle* or true boil differs from a carbuncle from the very first. No boil ever becomes a carbuncle, whatever size it may attain. It differs generally in colour, the carbuncle presenting a more livid hue than the boil, and it always differs in shape. A boil is the rounded apex of a very obtuse cone. A carbuncle is a flattened hemisphere, or, strictly, the half of an ovate spheroid very much flattened at the poles. After a few days, fluctuation may be detected in the boil much more distinctly than in the carbuncle. If a carbuncle is not freely lanced it will sometimes go on increasing in size to an almost incredible extent. The boil may be neglected with less hazard, as it will burst and discharge itself at once. Both, however, should be lanced, as soon as it is evident that the suppurative process has commenced. Emollient poultices are useful both before and after the operation.

Whitlows, when they are superficial and unconnected with disease of the matrix of the nail, neither require lancing nor poulticing. As a general rule, they are damaged by both. If the matter is discharged, more will be formed, and the poultice only relaxes the tissues which are already swollen and encroaching on the nail. A cold discutient lotion, very frequently applied, is by far the most useful mode of restoring the parts to their natural condition. Superficial abscesses, in other situations, are better opened. Whitlows occasionally require a leech or two.

The *medical treatment* of the furunculoid epidemic must of course be conducted on general principles, but there are two indications which may invariably be acted upon. Our measures should be eliminative and tonic; *eliminative*, because the very manifestations of the disease are eliminative, and we must follow the leadings of nature in all diseases; *tonic*, because all epidemics tend to reduce the vital powers and to lower the standard of vigorous health. They often find their victims weak, and as frequently leave them weaker. To invigorate the system therefore by tonics, and by a nourishing and somewhat stimulating diet, is the important point in the constitutional treatment.

By far the most important tonics are those which are generally called purgatives; when these are properly selected and discreetly administered, they certainly have the power of giving a degree of tone and vigour to the digestive organs which no other tonics can claim. And they have this advantage over every other tonic, that they have also an eliminative office, and while they give tone to the vascular action they serve to defecate the circulating fluids. The tonic action of purgatives may be doubted by those who look upon them simply as evacuants. But it must not be forgotten that constipation is often caused by local debility, and that some purgatives, by promoting a more vigorous peristaltic action, relieve and indirectly brace the whole system. It is certainly impossible to extol too highly the utility of purgatives in the treatment of this epidemic, which sometimes annoys the patient for weeks and months together, resisting all other treatment but yielding most readily to brisk and systematic purging. I have known several medical men who have suffered severely, and for a long time together, from a succession of boils and pustules, for this simple reason, that the compound colocynth pills and the like, do not find their way so readily into the stomachs of medical men as into those of our patients. In this disease it is rare for patients to complain of the exhausting effect of purgatives. The debility characteristic of the malady is rather that of oppression, dulness, and heaviness, than of faintness and sinking. There is congestion somewhere, and when the load is taken off by purgatives the organism rises like a spring.

Alternately with purgatives, which should not be allowed to succeed each other oftener than once in forty-eight hours, a combination of quinine with the mineral acids, and very small doses of sulphate of magnesia, together with the tincture or infusion of orange-peel, or the compound tincture of cinchona, may be taken every sixth or eighth hour, with a liberal allowance of sound wine, a generous diet, and easy exercise in the open air. The purgatives which seem to answer best are those which act most briskly on the larger intestines, such as colocynth, aloes, and jalap, to which a few grains of calomel or blue pill often form an important addition. The dose must be such as will act three or four times without producing exhaustion. When the disease has become chronic, alteratives are sometimes necessary. Of these the most useful are Plummer's pill, the bichloride of mercury, the chloride of arsenic, and the compound decoction of sarsaparilla.

The complications of the epidemic are numerous and frequent, and should not be overlooked in the treatment. Eczema is very commonly found associated with it, and generally assumes the impetiginoid form, not unfrequently being so acute in its primary or inflammatory stage as to require leeches and rather severe depletion, after which the skin resumes its natural appearance, but the attack terminates in a succession of boils or pustules, which are particularly troublesome when the previous inflammation has not been actively dealt with. These must be treated by purgatives and tonics as above described, and the patient soon recovers not only the previous state of health, but attains to an improved condition.

A very important addition to this treatment is a fresh-water bath of about 85° to 90° twice or thrice a week, late in the evening, the limbs being well rubbed afterwards.

THE AUTOBIOGRAPHY OF BERZELIUS.—After the death of this great Swedish chemist, it was found that he had left behind him a copious and highly interesting biography, for the publication of which we have long and anxiously waited. It appears, however, that the autobiography contains so many personal allusions, and so many unsparing criticisms of living, or recently deceased scientific men, that the executors are not only afraid of publishing, but are actually prevented from doing so by the laws of Sweden, which forbid the printing of works dealing in personalities, until several years after the death of their authors. From the known dislike of Berzelius to Sir Humphry Davy, and to the recently deceased Dr. Thomas Thomson, it is supposed that these eminent chemists figure largely in the suppressed work. We feel sure that the surviving relatives of these distinguished men would prefer the opportunity of answering such criticism themselves, rather than leave the task to a future generation. We trust that the obstacles which prevent the appearance of this—as we are told—remarkable work, may be overcome, and that speedily.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON, &c.

> Nulla est alia pro certo noscendi via, nisi quamplurimas et morborum, et dissectionum historias, tum aliorum proprias, collectas habere et inter se comparare.—MORGAGNI. *De Sed. et Caus. Morb.*, lib. 14. Procemium.

CASES OF IMPERFECT DESCENT OF THE TESTICLE, CONNECTED WITH, STRANGULATED HERNIA.

ST. BARTHOLOMEW'S HOSPITAL.

Encysted Hernia in the right Inguinal Canal; Abnormal Situation of the right Testicle; Strangulation; Operation; Recovery.

(Under the care of Mr. SKEY.)

THE groin is, in both sexes, a region in which operations should always be conducted with great caution, for the various tumours which make their appearance in the inguinal portion of the frame very often present great outward resemblance, with the most important differences as to their actual nature. We are acquainted with hospital surgeons who never open a bubo without making the patient cough, and applying the hand or stethoscope to the swelling. This may perhaps be looked upon as exaggerated prudence, but it is better to err on the safe side.

We need not remind our readers that some of the best operators have opened aneurisms in the groin which were thought to be abscesses. These unfortunate accidents have been sufficiently recorded; but we may cursorily mention, that we sometimes see hospital patients, affected with swelling in the groin, or in the scrotum, with whom it is extremely difficult to determine of what structures the tumour is really composed. We have always found that the most prudent course was to explore, when the symptoms were very severe, and to wait when no urgent signs are being manifested.

Among the anomalies which may be noticed in the groin, there is one which should always be borne in mind—viz. the incomplete descent of the testis into the scrotum. It would at first sight appear as if this abnormal state could hardly escape attention, as it is easy enough to ascertain whether the scrotum contain two testes, or only one; and yet such oversights *do* occur. It is especially when the abnormal situation of the testicle is connected with strangulated hernia, that the mistake is likely to be made. The attention is, in such cases, exclusively and anxiously fixed on the reduction of the hernia, and the scrotum remains unnoticed. It would be well to recollect that the testis, when it is not found in the scrotum, may be looked for in any portion of the inguinal canal, and that it has also happened that the organ does not leave the abdominal cavity at all. The testicle may likewise take a very unusual course, as happened in the case which we are going to relate; for here it had lodged under the integuments of the thigh.

Strange to say, a case of a somewhat analogous kind was, a few days after the reception of the first, admitted into the same hospital, under the care of Mr. Lloyd; there was here, also, retarded descent of the testicle, hernia, and strangulation. We are happy to say that both cases did well; and we proceed to describe the first, from the notes of Mr. Smith, house-surgeon to the hospital.

John R——, a tall, overgrown, strumous-looking lad, aged fifteen, applied for admission on the 1st of March, 1852, at half-past eleven P.M., complaining of great pain in the right inguinal region, constipation of the bowels of four days and a half duration, and frequent vomiting of a green fluid. His countenance was pale and anxious; and on examination of the abdomen, the attention was at once arrested by the peculiar appearance of the organs of generation. The left testicle occupied its usual situation in the scrotum; but on the right side of the raphé the scrotum was undeveloped. On this latter side, quite distinct from the scrotum, and descending from the external abdominal ring, was an elongated, oval swelling, the surface of which was formed by the ordinary integument of the thigh, presenting none of the rugose appearance natural to the scrotum. Within this swelling, which the patient said had existed about five years, the right testicle was distinctly felt, seemingly somewhat smaller than the left. The patient had always considered this tumour to be a rupture, and seemed quite unconscious of the malformation. On squeezing the swelling, however, he experienced a sensation exactly similar to the one produced by pressure on the left testicle. There was also a tumour in the course of the inguinal canal on the right side, excessively tender, but firm and unyielding. The external abdominal ring could be felt large and free, the tumour in the inguinal canal not having descended through it. The whole of the abdomen was intolerant of pressure.

The patient being questioned as to the history of the case, said that he had always been healthy, and was occupied in carrying out milk. His bowels had frequently been confined, and he once suffered from constipation for four days, but without any sickness. He continued in good health up to four days and a half before admission, when, having been engaged in his usual occupation, he suddenly experienced severe pain in the groin. The bowels had acted during the morning. From that time up to the evening before he came to the hospital, the patient kept his bed, suffering from pain, constipation, and, during the last twenty-four hours, from vomiting. He had taken some antibilious pills, which did not operate; and a doctor was then called in to see him. The latter said it was a rupture. He attempted to return the oval swelling described above (the testicle:) and as it seemed to come down again, told the lad to put his hand on it, and hold it up; and gave him, in the meantime, some castor-oil. In the evening, after another attempt to reduce the swelling, which was of course equally unsuccessful, the boy was advised to come to the hospital.

On examining all the features of the case, on the patient's admission, it was supposed, from the absence of the right testicle in its normal position, coupled with the fact of the tumour in the thigh having existed five years, and presenting to the touch the ordinary feel of the testicle, that this was one of those cases in which this organ, failing to descend at the proper period, had deviated from its ordinary course, and formed for itself a pouch under the integument of the thigh. It was further conjectured that the tumour in the inguinal canal consisted of a knuckle of intestine, strangulated at the internal ring.

Taking into consideration the date of the strangulation, the frequent vomiting, the anxiety of countenance, depression of the system, and the great local tenderness, probably caused by the efforts to reduce the supposed hernia, it was thought advisable, after finding no good result from the warm bath, at once to have recourse to an operation.

The patient was put under the influence of chloroform on his bed, and the operation commenced by an excision over the external abdominal ring, about two inches in length. The several layers were cautiously divided down to the ring through which the hernial sac protruded. On pulling the sac upwards, it was found to be continued down to the testicle, forming the swelling in the thigh. The finger could be passed readily into the canal, in which could be felt a portion of very firm intestine; and the stricture was found to exist, as supposed, at the internal ring. Considering the length of time the intestine had been strangulated, it was deemed advisable to open the sac, whence a considerable quantity of sanious fluid escaped. The portion of intestine now exposed was of a dark claret colour; and behind the sac the spermatic cord could be distinctly seen and felt. There was no communication downwards through the sac to the testicle. After some difficulty, a director was slipped between the intestine and the stricture, which latter was divided with a probe-pointed bistoury. The gut was then readily returned. One vessel required a ligature. The wound was closed, and the patient made comfortable in bed. Before fully recovering from the effects of the chloroform, he fell into a slumber, which lasted nearly an hour, when he was found relieved of much of his pain. The pulse was 76, of moderate volume, and the anxiety of countenance had quite subsided.

Two hours and a half after the operation the bowels acted freely, (a dark brown, extremely liquid motion.) He complained of some griping pains when the bowels acted, possibly from the purgative medicines administered previous to his admission. One grain of opium was now given.

Second day.—The patient went to sleep again directly after the last visit, and only woke three times, when the bowels acted. There has been no sickness. He still complains of griping pains; the abdomen is tender and tympanitic, tongue red and rather dry in the centre; pulse 88, not at all sharp. Ordered ten minims of tincture of opium at once, and to be repeated every third hour. He continued to sleep a good deal during the day, and in the evening took some little nourishment. He complains of no pain, but the abdomen is still intolerant of pressure; tongue rather dry; bowels open two or three times during the day; no sickness; pulse 96, with rather more power.

Third day.—The boy passed a comfortable night; the abdomen is less tender, and pain is felt chiefly in the situation of the right testicle, which latter is inflamed, this state of things having probably been produced by the efforts that had been made to return it into the abdomen; tongue clean and moist; the bowels have not acted during the night; pulse 84, soft and compressible. He was ordered to discontinue the opium, and to apply two leeches to the right, abnormally placed testicle. When seen the last thing at night, he was quite easy; the bowels had acted, and the pain in the testicle had been relieved by the leeches.

Fourth day.—The patient has slept well; he looks brighter about the eye, and expresses himself as feeling better; his pulse is quiet, and he has less tenderness of the abdomen. The bandage and pad were removed from the groin, and the sutures taken out; the wound looked exceedingly well, and had partly closed

From this time the progress was favourable, excepting a small collection of matter which formed over the testicle lying on the thigh. This abscess was opened, and twenty-five days after the operation the patient was discharged, with complete cicatrization of the wound, and protected by a truss.

One is naturally led to ask, after reviewing the facts of this case, by what agency the testicle found its way under the integuments of the thigh. Probably from some fault about the gubernaculum, which failed in this instance to lead the organ as usually into the scrotum. The deviation was probably then regulated by the more or less laxity in the parts about the external ring. We need not say one word touching the efforts made previous to the patient's entrance into the hospital to return the mal-placed testicle into the abdomen; it was an oversight, the recording of which will act as a warning to others.

We would in the last place refer to the necessity, when patients apply for a truss, of examining the parts very carefully, and not depending on their simple statements. Suppose this boy had purchased a truss at a chemist's, as is often done; the mentioning of a swelling in the groin would have been sufficient, the truss applied on the undescended testis, and the patient consigned to a series of evils, which might have led to a very unpleasant termination. It is probable that the actual hernia with which he became subsequently affected never produced enough protrusion to attract his attention. In Mr. Lloyd's patient, with whom the testicle was likewise abnormally placed, the disposition was different, for the organ had not descended lower than the inguinal canal. Here follows the case, from the notes of Mr. Stretton, Mr. Lloyd's house-surgeon.

Inguinal Hernia on the right side; Imperfect Descent of the Testicle on the same side; Strangulation; Formation of a Watery Cyst; Operation; Recovery.

(Under the care of Mr. Lloyd.)

William D——, aged thirty-seven, and a baker by trade, was admitted into Bently ward, March 11th, 1852, under the care of Mr. Lloyd. The patient's countenance was pale and anxious, and he complained of much pain in the abdomen; the skin was cool; pulse 72, of moderate volume; tongue clean, and bowels said to have been freely open on the evening before admission. While walking in the street on the morning of his reception into the hospital, he had been suddenly seized with copious vomiting.

On examination, a large swelling was found in the right groin, measuring about seven inches in length and four in width; its surface was uneven and tense except at one point, near the anterior superior spinous process of the ilium. Here was situated a smaller tumour, about the size of a walnut, and giving the hand the sensation yielded by a bag of fluid. This swelling, according to the patient's statements, used to remain unchanged in size when the hernia, before the present attack, was returned into the abdomen. The external ring is free, but the right testis is not in the scrotum, and is supposed to lie in the inguinal canal with the herniated intestine. This latter circumstance was not thoroughly ascertained, as the slightest manipulation gave the patient exquisite pain, the latter then radiating all over the abdomen.

The man said, on being questioned, that he had been subject to hernia for the last fifteen years, that he had always worn a truss, and had never had any difficulty in returning the intestine until the morning of his admission. On that day, while in the street, he had suddenly been seized with a pain in the right groin, and violent sickness and upon examining that region, he found that the tumour had escaped from under the pad of the truss, and was much larger than usual. A surgeon was immediately consulted, who employed the taxis for *two hours* without success, and then advised the patient to seek admission into this hospital.

Immediately after the patient's reception, chloroform was administered, and gentle attempts were made, when he was fully narcotized, to reduce the hernia; but these proving unsuccessful, the operation was at once performed.

After the usual incisions, the testicle was found in front of, and close to the external ring: the sac was much congested, and the stricture situated at its neck, just at the internal ring. It was now thought necessary to open the sac, which measure brought into view a large coil of intestine of a dark-red colour. This was easily returned as soon as the stricture was divided, and the wound was carefully closed up over the undescended testicle. Mr. Lloyd now punctured the small swelling situated over the crista ilii; it at once collapsed, discharging a transparent citrine-coloured fluid. The patient was now conveyed to bed, and took five grains of calomel and one of opium.

The progress was pretty favourable until the next day in the afternoon, when the man complained of considerable pain in the chest; his respiration was hurried, the skin hot and dry; tongue moist; pulse 120, small and jerking, and abdominal tenderness considerably increased. There had been copious pultaceous evacuations. Mr. Lloyd ordered twenty-four leeches to be applied to the abdomen, and two grains of calomel with half a grain of opium to be given every sixth hour.

It was found on the next day that the leeches had considerably relieved the pain; the patient had slept well, and was altogether in a more favourable condition. The sutures were removed in the evening of this, the third day, and the wound looked very healthy. The further features of the case do not call for any special description, for matters proceeded in the usual way, and the patient was discharged in good condition about five weeks after admission.

As, very probably, the entrance into the scrotum is obliterated in both the foregoing cases on the side where the testis has failed to descend, it would be useless, during operations of the above-described kind, to attempt giving the arrested testicle its normal situation. The patients must thus continue to remain in the state in which they were found, at least as far as the position of the testicle is concerned; but they now have the immense advantage of knowing the real state of things, and will be able to take the proper precautions, in order to shield the delicate and useful organ from injury. Indeed, a special protective apparatus should, we venture to suggest, be contrived for patients of this kind.

When it is considered how obnoxious to injury is the testis in both the situations which it holds in the two preceeding cases, one is inclined to pay a new tribute of admiration to the arrangement of parts in the human organism. The scrotum, with its power of rugose contraction, the tunica vaginalis, ever lubricated, and allowing the organ to accommodate itself to the most varied positions, &c., appear in great contrast with the situation of the testis in the instances just related—one at the upper part of the thigh, the other in the groin. It might justly be said that the testis would be, perhaps, more protected by remaining in the abdomen, in which cavity they are lodged before birth; but it will be seen at a glance, that all the derangements occurring in the abdominal viscera would then have a direct influence on these organs, and that, by being shut out from the peritonæal cavity, they have an independent existence, favourable to the performance of their functions.

The patient of Mr. Lloyd is said to have worn a truss; we suspect it was one producing very gentle pressure, as it is not easy to understand how the apparatus might, without inflicting pain or injury, have pressed both on the hernial sac and the testicle. It is probable that the latter organ, by the facility with which it glides, even in an abnormal situation, eluded the pad of the truss. We are inclined to think that the cyst by the crista ilii was caused by pressure from the steel of the truss, and cannot conclude without adverting to the long efforts at the taxis which are sometimes made in private practice. In the above case, for instance, if the patient's statements are correct, these efforts were continued for *two hours*; this is decidedly too much, and the evil was so much the greater in the present case, that the testicle was included in the mass which was for such a long time subjected to the manipulations of the taxis.

Cases of non-descent of the testicle are by no means so very rare as is sometimes thought; we saw, a short time ago, a man, among Mr. Curling's patients at the London Hospital, with whom the same imperfection existed. Here also there were inguinal hernia and strangulation, but the herniated mass was returned without operation.

KING'S COLLEGE HOSPITAL.

Trephining of the Tibia in Two Cases; in one for Abscess in the interior of the Bone, and in the other for Necrosis unconnected with any tegumentary solution of continuity.

(Under the care of Mr. Henry Lee.)

Abscess of bone is a pathological event with which Mr. Lee's name has of late been connected. The fact of these abscesses existing for a long time without involving the dense portion of the bone, and without therefore any tegumentary manifestations, is not a little strange, because it presents us with an exception to a well-known law; we mean, of course, the tendency of any morbid process which takes its origin in some internal locality to make its way to the surface.

Mr. Lee has lately had under his care one of these cases of abscess of bone. The existence of this lesion was diagnosed from the peculiar symptoms which shall be detailed below; and the use of the trephine gave considerable relief. But besides this instance of pyogenic action within bone, Mr. Lee has had under his care another case where the trephine proved very useful, and in which the entire thickness of the tibia towards the middle of its shaft became necrosed, without any abscess being formed, or any solution of continuity of the skin, sinuses, or fistulous tracts. This second case offers a good instance of the services which may be rendered by a good and sound diagnosis; for the detection or suspicion of the kind of lesion which had taken place naturally led to the application of the means best calculated to benefit the patient. We subjoin, in a few words, the description of both these cases.

A married woman, about twenty-five years of age, applied to Mr. Lee, at this hospital, as far back as 1849, for pain and uneasiness in the left knee-joint. The latter was then tumefied, and externally to the ligament of the patella a swelling of a yielding and soft consistence was noticed. There was great pain in the articulation, especially when the patient attempted to walk, or when the joint was being flexed; but she suffered most when warm in bed, and had slept badly for some time past. The woman stated that she had been treated for syphilis in this institution three years previous to her present application, and had taken mercury several times.

Mr. Lee, hearing from this patient that she was unwilling to seek for admission into the house, ordered a splint to be applied, so as to keep the joint at rest, and prescribed iodide of potassium.

Rapid improvement now took place, the joint could be more freely handled, and it was perceived that the head of the tibia was the part principally affected. But the patient had soon a relapse, as she left off the medicine immediately she was slightly relieved; a return to the iodide would set matters right again, but the pain always returned on the omission of the medicine. The woman thus continued for about three years, when her patience became exhausted, and she requested to be admitted into the hospital. Mr. Lee explained to her when she had been received (in the beginning of May, 1852,) that trephining the tibia might give her great relief, and she willingly submitted to the operation. It was thought that the tension probably existing in the bone might be removed by the operation, and the pain greatly diminished.

The head of the tibia on the left side was somewhat larger than on the right, and the pain on pressure was principally situated towards the insertion of the ligament of the patella. The shaft of the bone was unaffected, but the swelling on the external aspect of the joint still existed, and an enlargement on the inner side of the head of the tibia could be easily made out. It might thus be inferred that the epiphysis of the bone was the chief portion involved in this evidently tertiary syphilitic affection.

On the 29th of May, 1852, Mr. Lee proceeded, whilst the patient was insensible with chloroform, to make a T-shaped incision over the internal tuberosity of the tibia; and when the bone was exposed, he separated the periosteum with the handle of the knife, and applied the trephine. The latter had a deep crown, and was extremely small in diameter, measuring no more than one-third, of an inch in that direction. The instrument was easily worked almost to the opposite side of the head of the bone; the cancellous structure was found very soft, and a few particles of white matter escaped with the blood which was issuing in very moderate quantity. The object being thus accomplished, water dressing was applied, and the patient removed.

The effect of this operation was soon made apparent, and the woman stated that she had not felt so easy for years. For several weeks after the trephining the freedom from the pain which the patient had formerly experienced was maintained, the knee became occasionally stiff and uncomfortable, and the swelling on the outer part of the joint re-appeared, after having quite subsided; but small doses of iodide of potassium with citrate of iron, and an opiate at night, had a very beneficial effect. The patient now began to leave her bed, and left the hospital one month after the operation, her health rapidly improving, and the knee free from pain.

Two months afterwards, (about three months after the trephining,) she presented herself again, and it was ascertained that she could now walk with great comfort, and had not had any return of the peculiar pain which for years had been causing her so much distress.

Trephining of the Tibia for Necrosis, unconnected with any tegumentary solution of continuity.

(Under the care of Mr. Lee.)

This patient, about twenty-four years of age, was admitted May 21, 1852, complaining of severe pain in the left tibia. She had been suffering in the leg for the last twelve months, and had been under treatment at Guy's Hospital, where active antiphlogistic means had been used at first. She remained in that institution for twenty-two weeks, underwent various kinds of treatment, and after staying at home for some time, without medical aid, she applied to this hospital.

The left tibia was evidently enlarged through its two lower thirds, there was redness of skin and pain, which latter was sometimes so severe at night as to drive the patient from her bed. The skin was not broken, and there was nothing in the woman's history to point to syphilis or hereditary taint. For about five weeks the treatment consisted principally in emollient applications, rest, and tonics; but the tegumentary inflammation, which had somewhat subsided, soon re-appeared, and the leg became œdematous. Mr. Lee, therefore, resolved upon trephining the bone, as he felt confident that the irritation was seated in its interior.

On the 1st of July, the patient was narcotized with chloroform, and Mr. Lee applied a small trephine on the most projecting portion of the affected tibia, after the skin had been reflected. The walls of the bone were found considerably thickened, and much force was required to perforate them with the instrument. When the latter had brought away a circular piece of bone, the cavity thus formed was felt to be rough at the fundus. It was therefore plain that caries and necrosis were going on within, and that the plate of bone just perforated was the newly-formed shell. Mr. Lee determined. under these circumstances, to remove some more of the shell, so as to get easy access to the diseased portions of the bone.

The trephine was consequently applied in three more places, forming, with the first hole, a long square, and the bone was cut through with the saw along the lines of junction. A pretty large piece of new shell was thus removed, which, in its thinnest portion, was half an inch thick. A rough and plainly necrosed piece of bone was now brought into view, and taken away in the same manner as had been used for the outer shell. But at this stage of the operation it was found that the morbid process had extended to the opposite side of the tibia; both the elevator and the trephine were now used, and Mr. Lee succeeded in removing all the dead bone that could be felt and seen. The wound was dressed in the usual way, and the patient carried away after an operation which was necessarily protracted.

The patient's symptoms became now very favourable, the redness of the skin disappeared, the pain left her, and she slept soundly. For the next few weeks a certain amount of osseous detritus and portions of the outer shell were successively detached, but in about two month's time the cavity left by the operation was almost filled up, and the patient discharged in a very satisfactory condition.

We beg to direct attention to the first of the above cases, both on account of the peculiarity of the tertiary lesion of bone, and the good results which attended Mr. Lee's treatment. It is interesting to notice how regularly the iodide of potassium removed the pain; and this fact would go far to make many surgeons doubt whether this pain depends really on distension, for it does not appear very plain how the iodide could remedy the pressure, except it were in checking further secretions. In tension is not the whole secret of the pain, and it is extremely likely that the inflammation and morbid changes going on in the bone, which are both excited by the presence of the virus, have no small share in the production of pain. The very small amount of matter evacuated by means of the trephine, would in some degree strengthen this supposition.

The above-described operations must be looked upon as of an exploratory kind; and though the symptoms may have been very obstinate, and have withstood all ordinary remedies, the surgeon is not sure of the condition in which he will find the parts when he introduces his trephine. The most encouraging circumstance is, however, that were even the pain merely nervous and no abscess found, the patient would not be the worse off for the operation. We must nevertheless confess, that when we saw Mr. Lee apply the trephine in the first of the above cases, in which the morbid changes had taken place in the head of the tibia, we felt a little apprehensive as to the fate of the joint, and we are now happy to find that the articulation did not materially suffer.

The second case is especially valuable in a diagnostic point of view, and proves that considerable alterations may take place in a bone situated close to the surface, without the formation of abscess opening externally. Surgeons are so thoroughly accustomed to see caries and necrosis connected with a train of abscesses and subsequent fistulous tracts, that cases of this kind should be remembered, and aid us in our diagnosis when called upon to treat long-continued pain in bone.

LONDON HOSPITAL.

Inguinal Hernia; Imperfect Descent of the Testicle; Strangulation; Reduction without Operation.

(Under the care of Mr. CURLING.)

NORMAN U——, aged twenty-six, of a pretty healthy aspect, light hair and eyes, and a shoemaker by trade, was admitted Sept. 1, 1852, under the care of Mr. Curling, with very severe symptoms of strangulated inguinal hernia.

It was elicited from the patient, that inguinal hernia of the left side had existed since he was five years of age, and that he had never worn a truss. His health has always been extremely good, and he stated incidentally that he had never taken any medicine in his life, (with the exception, very probably, of the indispensable and unavoidable teaspoonful of castor-oil soon after birth.) He had never found any difficulty in returning the greater portion of the hernia when it happened to assume, upon some exertion, a greater bulk than usual; but the size of the tumour was generally equal to about a small fist. Thus the patient had reached his twenty-sixth year without suffering very great inconvenience from the state of his left groin, but he had, for the last few years, perceived that his scrotum contained but the right testicle, and that the left was situated in the inguinal canal.

About a fortnight before his admission the tumour suddenly increased to double its ordinary size; he had much trouble in returning it, succeeded but partially, and was seized with great pain in the abdomen, and obstinate constipation. At last he effected reduction by his own efforts, and had several alvine evacuations without the aid of any medicine.

This attack recurred on the evening before admission in an aggravated form, without any straining, effort, or irregularity that he could remember. The tumour now increased to an enormous size, the pain in the abdomen was extremely severe, and the vomiting incessant. Under these circumstances, a neighbouring surgeon was sent for, who endeavoured to return the hernial protrusion, but could not succeed. It was then thought advisable to transfer the patient to this hospital.

On admission, a tumour, about the size of a double fist, was noticed in the left groin; the swelling was very painful, the bowels constipated, and the vomiting almost constant. On manipulating the tumour, the left testicle, which could not be felt in the scrotum, was traced in the inguinal canal. In comparing the left organ with the right, it was found that the former had not reached half the size of the latter, and that it did not possess the resisting structure of the normal testicle.

The poor man was placed into a warm bath, and when the parts were completely relaxed, gentle efforts at the taxis were made. These proved successful, and a great portion of the herniated mass was returned into the abdomen. A purgative injection was subsequently given, and this brought away a copious evacuation. The symptoms immediately improved, and the patient has progressed very favourably since that period. The left testicle is lying in front of the external ring; it feels, as above stated, very small, and the hernial tumour, which is now about the size of a small elongated cyst, seems to contain a trifling portion of intestine and some omentum.

CHARING-CROSS HOSPITAL.

Medullary Tumour of large size, situated in the Right Inguinal Region; Partial Removal; Death; Autopsy.

(Under the care of Mr. HANCOCK.)

THE outward characters and intimate structure of tumours have been of late carefully described, and the labours of such men as Müller, Rokitansky, Paget, and others, have certainly rendered the diagnosis of abnormal growths less difficult than it formerly was; but in spite of this excellent teaching, tumours are met with in practice, the actual nature of which it is not easy to determine. Of course the surgeon follows in his investigation the nomenclature and divisions which are current in our times; he first classes the tumour to be diagnosed among the malignant or innocent growths, and afterwards ascertains to which subdivision of the former or the latter it belongs. But when from outward characters, and the history of the case, he has thus (with the assistance of a microscopical examination of the matter deposited on the exploring needle) given it a name, there comes still the question of removal or non-interference. And this applies both to malignant and innocent tumours. As to the former, an operation may be forbidden by a variety of circumstances; and so may it be with the latter, for an innocent tumour may be so situated as to render its removal hazardous; or it may have attained too large a size to be interfered with: or it may, lastly, have so encroached upon certain organs and cavities, that both the latter may suffer by an attempt at removal.

In the case before us, the ablation of the tumour was determined upon, as there existed some features which rendered its malignant nature doubtful. and as it was considered that the growth was lying externally to the abdominal parietes. It will be seen by the following details that both the external characters and the use of the exploring needle were well calculated to lead the surgeon astray.

John R——, aged twenty-seven, of dark complexion, and having led an irregular life, was admitted August 8th, 1852, under the care of Mr. Hancock, with a tumour completely filling the right inguinal region, and of the size of an adult head. It appears that about twelve years before admission, the patient first perceived a small tumour, about the size of a nut, at about the centre of a line drawn from the anterior superior process of the ilium to the umbilicus. This tumour he could easily take up with his fingers and thumb, and, as it were, remove it from the muscular parietes. The patient paid little attention to this growth, and for nearly eleven years it increased almost imperceptibly to about the size of a small orange. Even at that time the tumour could be moved about without any difficulty; but from this period to his admission into Horsemonger Goal (whence he was subsequently removed to Charing-cross Hospital,) a period of about twelve months, the tumour rapidly increased in size, and became a source of great inconvenience, though the patient suffered little or no pain, and allowed the growth to be handled without complaining.

While in prison, he continued in this state for about three months, enjoying tolerable health, the tumour increasing in size at the rate of about a quarter of an inch in circumference a month, as evidenced by measurement. The tumour became now a source of great annoyance, as it rendered walking difficult, but, with the exception of the extreme tension of the skin, no pain was complained of. The lower portion of the growth became every week more pointed, and the whole tumour assumed a somewhat conical form. Towards the lower portion some fluctuation was now detected, and an exploring needle was introduced, when about a dessert-spoonful of serum exuded. The upper and outer portions were also tried with the needle, but here the parts were more solid, as only a rop or two of blood escaped.

Mr. Wilkinson, surgeon to the prison, to whom we are indebted for these details, considered, after this puncturing, that the tumour was composed of a number of cysts, that some of these contained serum, and that the other portions of the tumour were steatomatous. Mr. Wilkinson would have had no hesitation in extirpating the tumour, had he not been prevented by certain prison regulations, as he considered the tumour subcutaneous, and external to the muscular parietes.

The patient's health remained good up to his release from prison, on which day he was received at Charing-cross Hospital.

The tumour was then found occupying, as we stated above, the whole inguinal region, from the crest of the ilium to the pubis; it was larger than an adult head, gave no pain on pressure, was elastic and yielding in the lower part, but nodulated and more resisting in the upper, and large veins were coursing in the integuments covering it. The patient's countenance was rather anxious, but his general health seemed pretty good. After he had been a few days in the hospital, Mr. Hancock made a puncture into the lower part of the tumour with an exploring-needle, and gave exit to a small quantity of serum; the latter was examined by Mr. Canton, and found to contain nothing but the usual constituents of that fluid; the exploring-needle being used a second time with the same results, the tumour was looked upon as a multilocular one, and Mr. Hancock, yielding to the request of the patient, consented to remove it.

On the 25th of August the man was placed under the influence of chloroform, and Mr. Hancock made a longitudinal incision through the integuments covering the tumour. After a little dissection a tough texture came into view, on dividing which a large quantity of clots and fibrinous concretions arrested the operator. A portion of the internal oblique muscle was now perceived, and as Mr. Hancock removed the clots and fibrinous masses, he found that he had penetrated into the abdomen. It now became evident that the tumour was mainly composed of these soft materials, that it had grown outwards and inwards, and had destroyed the abdominal parietes. It was therefore thought prudent to carry the operation no further; the lips of the wound were brought together by sutures, and the man carried to bed. He rallied pretty well for a few days, but it was evident that the sloughing and partial hæmorrhage which were going on in the groin, were telling very unfavourably upon his frame. He died about a week after the operation.

On a post-mortem examination, it was ascertained that the tumour had originated in the walls of the abdomen, and had taken, probably at the time it increased rapidly, a direction both towards the groin and abdominal cavity. The decomposition of parts and sloughing were considerable, and the clots, fibrinous masses, and proper substance of the tumour, had broken down to such an extent as to leave more a cavity than a swelling. It was, however, found that the parietes of the abdomen had been, in that region, quite destroyed, that the tumour lay on the omentum, and was attached to the cæcum and transverse colon. The adhesions were, however, easily broken down; and when these viscera were examined it was discovered that they were not involved in the disease. No morbid alteration was noticed in any of the larger vessels passing over the brim of the pelvis, and no tumour or deposit was made out in the principal cavities of the body. Some of the substance forming the bulk of the growth was examined under the microscope, and found to contain numerous cancerous cells.

The deceptive characters which were presented by this tumour were:—1st, the fact of its having originally been moveable and distinctly lodged in the subcutaneous tissue; 2nd, the very slow development of the growth (except for the last twelve months,) and the almost complete absence of pain; 3rd, the serum which escaped upon puncturing the lower portion of the tumour; 4th, the excellent state of health which the patient enjoyed up to the time of the operation; 5th, the non-appearance of that tendency to ulceration which malignant tumours almost always show.

Now as to the first of these characters, it may be that the swelling was originally of a simple kind, but that it took on, at a late period, (when its increase became very rapid,) a malignant nature. The explanation of the second character is the same as that of the first, though it still remains a very striking exception, that a medullary tumour should have taken a rapid development for a twelvemonth, without giving rise to any pain.

The serum which we mentioned in the third place, was certainly very puzzling, for the idea of a fibrocystic tumour immediately presented itself, since these tumours have been known to take their origin from the subcutaneous tissue of the abdomen. But now that we know that the tumour was malignant, it may perhaps be inferred that its vessels, having become very thin, had given way, that hæmorrhage had taken place, as happens with the medullary tumours formerly called fungus hæmatodes, and that the serum obtained had merely separated from the clots.

As to the good state of health which we mentioned in the fourth place, it must be looked upon as an exception, though patients are sometimes met with who do not exhibit the cancerous cachexia for a long time. Touching the tendency to ulceration, which was here absent, (fifth character,) it would seem that the pressure, which generally gives rise to it, was exerted towards the abdomen. The complete destruction of the walls of this cavity is certainly a feature which points very strongly to malignancy, but the existence of this destruction could hardly be suspected, as there arose no symptoms of any abdominal disturbance.

If we mistake not, our readers will rise from the perusal of this case with the conviction that the greatest care and attention do not shield from occasional error; and that, as a rule, we ought to advocate and advise the early removal of tumours, although they may not create very great inconvenience. This remark applies to growths both of an innocent and of a malignant kind.

THE HUNTERIAN MUSEUM.

If a Member or Fellow of the College of Surgeons of England in any part of the habitable globe were asked to point out the chief glory and ornament of this profession, he would reply with pride, John Hunter and the Hunterian Museum. All who have entered this magnificent temple, sacred to the ideas of the Creator in all that relates to the life and faculties of his creatures, must feel that the pride of the profession in the monument formed by the genius of Hunter, is just and well-founded We would yield to none in our veneration for this vast collection; but we see reasons for believing that, according to the arrangements under which its preservation and development are provided for, it bids fair to be a drag and grievous injury to the profession of which it is at the same time the boast and ornament.

It is well known that the Government of the day, after the death of John Hunter, offered the museum in the first instance to the College of Physicians, and that this body respectfully declined the gift. The more ambitious College of Surgeons accepted the museum, and has ever since striven to maintain it in a style which does honour to that body. But such a collection as the museum must necessarily be added to year by year, and the expenses of its accumulation, preservation, and direction have been enormous. It increases, and is increasing, and it is scarcely possible to name the future cost of the adequate preservation of such a vast exhibition. The College have received occasional subsidies from Government, and were fortunate enough to get £15,000 from Lord John Russell, all of which will probably be spent in building a new museum, and erecting a statue to the member of the Council through whose exertions, and during whose presidency, the grant was obtained. But after this expenditure, the museum must depend, as heretofore, upon the fees paid by students for diplomas; and here is the real pressure of which we complain.

It is calculated that the future expenses of the museum will be at least £3000 annually, the chief part of which must be raised by students' fees. Hence it becomes necessary that at least a given number of students shall pass the College. The Hunterian Museum becomes, in fact, a machinery for drawing a large number of men every year into an already crowded and under-paid profession. It becomes the interest, and in one sense the unfortunate duty, of the Examiners, as the managers of the museum, to raise money by the students. It is another duty of the Examiners to exercise a severe supervision over those desirous to enter the profession, and to take care that none but properly-educated and properly-qualified persons obtain admission. Now we say that no men should be placed in positions in which interests and duties so clearly clash. No doubt the Examiners think only of their duty to the living profession of surgery, and not to the dead contents of bottles and cases; but somehow the bottles and cases, and their contents, are in fine condition, while the profession supplies not only the surgical needs of the public, but a good number of policemen, railway guards and ticket-takers, emigrants, and other classes not specially directed to the cultivation of surgery. And, moreover, it is simply matter of fact, that, of the large body of quacks which infest the profession within its own pale, three-fourths are members or fellows of the College of Surgeons. These anomalies and causes of professional degradation, and the Hunterian Museum, may not stand in the relation of cause and effect; but we strongly suspect they have a more intimate relation than at first appears. Under the present arrangements, the Hunterian Museum seems to be a kind of Frankenstein, whose growth becomes every year more and more an incubus upon the College and the profession. The results at which we have hinted, must ultimately ensue, unless means can be found to render the monster a glory instead of an engine of deterioration to the profession.

The remedy for these evils would be found in an annual grant from Parliament for the support of the Hunterian Museum. There would not be a more honourable item in the whole of the miscellaneous expenditure of the nation. The Council of the College of Surgeons, by a lengthened devotion to the museum, have shown that its management could not be in better hands than their own. If there has been any fault, it has been that the Council have ever been ready to make every sacrifice in all that concerns the museum. We believe that, were the application made, any Government, Whig or Tory, would be ready to lend an ear to such a reasonable request as that the State should bear the maintenance of this museum. Assuredly, there is not an institution in the kingdom more emphatically a national one.

Let the Council of the College bestir themselves to obtain representatives in Parliament, and their own deliverance and the deliverance of the student from the incubus involved in the support of the Hunterian Museum by students' fees. The Council have gained a Charter and a handsome grant from government; but let them not suppose that they can thereupon go to sleep for the next ten years.

FRENCH LUNATIC ASYLUMS.

Another portion of Dr. Webster's report on foreign asylums having recently appeared, we think it right to bring before the profession one or two prominent points which seem interesting. The institutions embraced in that gentleman's present narrative are Stéphansfeld and Illnau, situated in the great valley of the Rhine; but although the former establishment is French, and the latter, strictly speaking, belongs to Germany, both may be considered very similar in essential features. Alsace and Baden, although having different governments, have inhabitants that greatly resemble each other, as well in race and physical conformation, as in religion, language, and social condition. The two asylums just mentioned having been only recently constructed, they are naturally of a very superior description, consisting of a large central structure, which contains the chapel, as also official residences, and from whence the various dormitories, with their appropriate court-yards, branch off on each side. Hence, unlike many public asylums in England, instead of being one large building, (however pleasing such elevations may appear to spectators from without, nevertheless the comfort of residents is frequently sacrificed to architectural display,) Stéphansfeld and Illnau comprise a *congeries* of distinct houses with separate enclosures, which, besides constituting better accommodation, possess numerous important advantages, when contrasted with the most palatial erections of the former description.

Parallel in respect of structure, it is also remarkable how much the two institutions resembled each other with reference to actual population, number of admissions, cures, and deaths; indeed, in almost every peculiarity, excepting the reported amount of personal restraint—the camisole being much more frequently employed in the German than in the French asylum—only one patient being partially confined by a strait-waistcoat at Stéphansfeld; and even that was chiefly to prevent this lunatic from deranging the dressings applied to one of his legs, recently broken; whereas, against this solitary example, it appears eight patients were then suffering from personal confinement at the Illnau establishment. These facts show clearly the non-restraint system of treating maniacs has not yet made so much progress on the east, as on the west bank of the Rhine. Indeed, when subsequently alluding to the "Irrenthurm" of Vienna, which constitutes the old lunatic asylum of the Austrian capital, Dr. Webster says, when he visited that receptacle for the insane, some years previously, it was the very worst he had ever inspected, "many of the inmates being bound by chains, and howling in dens, more like wild animals in cages than Christian men; whilst numbers had almost nothing but straw for their covering." Such harrowing details demonstrate the necessity of improvement; although it is gratifying to hear, on the same authority, that a new lunatic asylum has been recently built in Vienna, at an expense of £80,000, which is now considered one of the best-conducted institutions throughout Germany.

The recent political excitement, like other important popular movements which intensely occupy public attention, seems to have produced marked impressions upon the minds of large classes of people in France. In proof of this influence, Dr. Webster mentions that several imaginary Préfets, self-styled representatives in the Legislature, and other fictitious high personages, who had lost their senses during the late revolutionary proceedings, were recognised amongst the inmates of different public asylums. At one institution, there recently existed three maniacs, who believed themselves to be Louis Napoleons, and consequently all Presidents of the Republic; whilst at another establishment, a fourth visionary Louis Napoleon was also under treatment. Various candidates for the presidential chair, or seats in the legislative assembly, were likewise noticed at some of the asylums inspected, each of these afflicted fellow-creatures being insane upon particular subjects. Such results are, however, analogous to previous experience, since, at the period of the Crusades and great Reformation, as during the first French Republic and subsequent wars in Italy, and on the Rhine, insanity very frequently prevailed. Again, when the Emperor Napoleon upset dynasties, and overran Europe with his victorious armies, imaginary kings, princes, and ideal great men, were numerous in the lunatic asylums of France and Germany. These facts are not only instructive, but they also indicate, that wherever the population of any country become intensely excited by predominant ideas, especially amongst individuals predisposed to mental disease, and otherwise of weak nervous organization, similar influences will occasion such very powerful effects, as even sometimes to cause a species of mental epidemic in certain communities.

ADDRESS TO STUDENTS.

In all the important occupations of life there are certain prominent principles, the cultivation of which may be looked upon as essentially conducive to success. That the Profession of Medicine forms no exception to this rule, is certainly true, though it may be doubted whether these landmarks are as clear, or at all events so easily defined, as those which indicate the path of fame in the other learned avocations. It may, however, be asserted as an established truth, that no walk of life demands so comprehensive a mind in its followers as that of Medicine; that in none is it necessary to cultivate with greater care the talents of observation and attention; remembering that observation does not consist in the mere habitual sight of objects,—in a kind of vague looking-on, so to speak,—but in the power of comparing the known with the unknown, of contrasting the similar and dissimilar, in justly appreciating the connexion between cause and effect, and in correctly appreciating established facts. The great Newton has assured us that he knew of no difference between himself and other men, but in his habits of observation and attention; and almost the same encouraging remark was made by Locke.

It is one of the happiest qualities of youth, that the mind is then fresh and ductile, and ever ready to receive impressions; by an early culture of the mental faculties, by attempting to think correctly, by carefully training the intellect, wisdom is to be acquired. Wisdom! so difficult and slow of attainment—so distinct from knowledge, yet dependent upon it—so God-like an attribute, that it is to be early and ardently sought for as forming the brightest ingredient in the character of every man, in whatever degree it may exist. In the language of Cowper, the high-minded but afflicted poet, whose very sufferings, as they can be more readily appreciated by our profession, so lead us probably to regard him in a more exalted light,—we would say:

> "—————————— Knowledge dwells
> In heads replete with thoughts of other men,
> Wisdom in minds attentive to their own.
> Knowledge, a rude unprofitable mass
> The mere materials with which wisdom builds,
> Till smooth'd. and squared, and fitted to its place,
> Does but encumber whom it seems to enrich.
> Knowledge is proud, that he has learnt so much;
> Wisdom is humble, that he knows no more."

In the choice of a profession, young men are doubtless influenced by different motives, some being led by idleness to select that requiring the least exertion, some by ambition to adopt that most conducive to popularity and fame, some by avarice to prefer that offering the greatest amount of emolument, or, by their possession of interest and influence, most likely to lead to wealth. Others, again, are guided by their having a certain aptitude for peculiar researches and pursuits. We trust that the majority of those now about to commence the study of Medicine belong to the latter class. It is in our judgment most important that the student should adopt the profession of Medicine of his own free will, from his having a predilection for its studies, after he has enjoyed, if possible, some opportunity of forming a practical opinion on the subject. Without a real love for the occupation and its duties, his after career, and even his career as a pupil, will be deficient in that healthy and virtuous enthusiasm which has, in all ages, animated men to the greatest exertions. That enthusiasm consists in the firm, permanent, and resolute action of the will in obedience to the impulse of moral conviction, or to the dictates of a well-regulated understanding. It will, moreover, help to that renunciation of self, and devotion to the interests of others, so imperiously demanded from the practitioner of Medicine. It ought to be superfluous to say, that those about to enter the temple of Æsculapius should be gentlemen, and, as such, that each one should be careful to regulate his conduct by honour, good-feeling, and a love of truth. As a student he should be careful in the choice of his associates, avoiding the idle and thoughtless. The man who will embark in a calling having for its end the care of human life, without adequate preparation, must indeed be thoughtless, if his conduct does not deserve a harsher term. And as in after-life he would blush to hold any kind of intercourse with the knaves and quacks who prey upon the public, so, during his state of pupilage, we would advise him to be wary of forming personal intimacies with those who prove by their daily conduct that they are likely, in their ignorance, to become empirics and impostors. He may rest assured, that not only will such associations be debasing and contaminating—be like touching pitch—but almost criminal, if we may believe the aphorism of Seneca, "Nil interest faveas sceleri, an illud facias."

With regard to the education which he should possess prior to commencing his medical studies, we would recommend as especially important that he should be a good classical scholar; that is to say, he should possess a sound knowledge of the Latin language, and be tolerably well acquainted with the Greek. The former is indispensable; the latter will be advantageous, though hardly of the same degree of importance. Still, we are not unmindful of the opinion expressed by the learned Erasmus, and still entertained by many University authorities, that no one can arrive at eminence in literature without an acquaintance with that of ancient Greece. It is impossible to overrate the utility of a knowledge of the modern languages, every new language being a new instrument of power, and affording an increased fund of mental enjoyment. This will be found especially true of the German language, the Germans, as a nation, being probably more highly educated than any other people, while in every department of literature they possess men of the highest eminence. As the name of Shakespeare alone should induce every stranger who values the poetical and beautiful to study the English language, so, though in a less degree, the name of Goethe, the delight and honour of his countrymen, should be sufficient to inspire every youth with the desire to read his works in their original language. To say that we are indebted to the Germans for much that is valuable in medical science, is but giving them that praise which they have long since received; and though we possess translations of many of the most useful works of this class, still they are, as all translation must necessarily be, but imperfect reflections of the originals. In addition to these branches of knowledge, it is essential that the student should be a fair mathematician—at least to such an extent as may enable him to pass the matriculation examination of the University of London; that he should be well grounded in the elements of natural philosophy; and that he should be as well read in history and general literature—especially that of his own country—as any educated youth in the present day is expected to be. The general diffusion of knowledge, and the comparative ease with which instruction may now be obtained, render it the more disgraceful to be ignorant, at the same time that it increases the difficulty of excelling. It is also to be remembered, that that which has cost a life of labour in the original attainment, may often be subsequently acquired with ease. The path has been pointed out, and cleared of impediments and difficulties; so that a boy of seventeen, of ordinary talent and industry, may now know all that the utmost stretch of the abilities of Newton discovered in forty years.

In the selection of a Medical School, our young friends must be guided more by the advice of senior students of their acquaintance than by any direct recommendations we can feel justified in giving. From the preceding pages, ample information may be obtained of the general scope of each institution, of the number of patients and ordinary accommodation at each hospital, and of the physicians, surgeons, and lecturers attached thereto. We believe that most of them are efficiently conducted, and that a sound education may be obtained at any one of them; but, as might be expected, they are distinguished for excellence in different departments, some being preferable on account of the superiority of their staff, some for the skill of a particular physician or surgeon, and some for their management or accommodations for teaching. Much more, hovever, depends upon the student himself than upon his school. His choice is immaterial, provided he selects one where attention is *really* paid to clinical instruction. The size of the hospital, the extent of the school, or the number of temptations offered in the shape of scholarships and prizes, should not be allowed to bias his judgment. Prizes and medals are frequently purchased at a dear rate. Many a student has sunk under the struggle to distinguish himself as a prizeman. But the prize, as now awarded, is no evidence of the actual ability of the man who gains it. He may be "crammed" for the occasion. A good memory may avail him in the contest more than true merit. Hence it is that prizemen seldom become eminent. They have sacrificed the more important duties of observation and practical knowledge to the mere learning of words. The class examinations are of much practical value, and should never be neglected.

The object of all medical science is, strictly speaking, the prevention and cure of disease; but in order thoroughly to understand the nature of disease, it is necessary that the structure and functions of the various parts and organs of the human body in a state of health be rightly comprehended. Thus the course of education on which those for whom we write are about to enter may be divided into three parts—the first, consisting of Anatomy and Physiology; the second, of Pathology, or the Science of Disease; and the third, of the Medical and Surgical Treatment of Disease. It is clear, therefore, that the ensuing three or four years of their lives are to be chiefly devoted to the dissecting-room, and to the wards and dead-house of the hospital; and though we advise them by no means to neglect their attendance upon lectures, yet we would have these regarded in their true light, as but means to an end, and not to be compared in importance with the investigation of diseases at the bed-side. A career of hard work may be closed by obtaining a load of prizes, and by knowing "the practice of physic" by heart from books. They will make but sorry practitioners, however, who have neglected to watch closely the progress and termination of disease, with the daily effects of the remedies and treatment employed. The value of actual dissection cannot be too strongly insisted upon. It is the very foundation of all success, whether in the physician or the surgeon. All those who have risen to eminence, either as physicians or surgeons, have been great anatomists. The immortal Harvey revolutionized the entire practice of physic by his knowledge of anatomy. The incessant labours of Hunter in the dissecting-room enabled him, aided by the light of genius, to confer such honour upon our profession, and so many benefits upon mankind. Sir A. Cooper boasted that he never passed a day, even in the zenith of his practice, "without dissecting some part of the body." The facile and unerring incision of the late Mr. Liston was practised originally in the. dissecting-room. These examples only amongst many. In his attendance upon the physician or surgeon during his "rounds," the tyro will find much that is novel to him, and very much that it is impossible for him to understand. He must not on this account allow himself to be discouraged. Let him remember that his teachers have gone through the same course of study that he is commencing; let him still persevere, taking such notes of the cases as he can, obtaining all possible information, and in the evening of each day elucidating the difficult points by reference to such standard works on the practice of medicine or surgery as have been recommended to him. If this course be pursued steadily and thoroughly for a few months, he will find that he is gaining much knowledge, and his attendance in the wards will become one of his most pleasing and attractive duties. He will derive great benefit from selecting two or three cases, both in the surgical and medical wards; of these he should carefully note the history, diagnosis, and prognosis, and then watch the patients, either day by day, or at longer intervals, according to the nature of the disease. By accurately describing the progress of the case, the effects of medicines, of stimulants or low diet, with the more or less favourable results of the treatment, he will acquire the habit of observing pathological phenomena, and become, in time, intimately acquainted with the numerous morbid manifestations presented in our large hospitals. But let the student beware! The mere noting of the pulse, state of the bowels, amount of sleep, quality of the secretions, mechanically written down without making these synthetically bear upon the disease under consideration—without reference to the pathological changes going on—without inquiring whether the phenomena which are recorded are to be looked upon as cause or effect—is merely the work of a schoolboy, which the sister of the ward could perform equally well. Observe, note regularly and systematically, and think over the phenomena which have been seen. In a kindly manner investigate the symptoms which have preceded and accompanied the attack; give the patient time, and he will acquaint you with his sensations, the probable cause of his complaint, the peculiarities of his constitution, &c.—facts which will be of great value to you in the investigation of other cases of a similar nature. Examine all extraordinary cases, but do not be too anxious for them; do not exclusively thirst for the excitement of very rare diseases and unusual operations, but try to become thoroughly acquainted with the more ordinary forms of disease, so that you may see the application of principles to individual cases, and learn your profession upon as scientific a basis as its present state will allow. Treating of hospital practice, we cannot avoid mentioning our own labours in that department. We have endeavoured in the "Mirror of the Hospitals," to present the profession and alumni with the most useful facts which are observed in the vast nosocomial field of this metropolis, "reflecting" the practice of our leading physicians and surgeons, and endeavouring, by remarks and comments, to awaken attention, and set the mind at work upon the all-important practical subjects which daily come under consideration; and no pains will be spared to maintain the deservedly high character which our "Mirror" has acquired.

Let the student especially beware of learning his profession empirically, as one who acknowledges no principles, but only rules derived from experience. An empiric only inquires whether a remedy had a good or a bad effect in any given case, never asking *why*? never seeking for the cause of what he observes. It has been well remarked by Liebig, that we should contemplate the diseased conditions of the human body from a very different point of view, if we were first thoroughly acquainted with its normal conditions—if we had established the science of physiology upon a satisfactory basis. How differently would the treatment of diseases be conducted if we had perfectly clear notions of the processes of digestion, assimilation, and excretion. Without just views of force, cause, and effect,—without a clear insight into the very essence of natural phenomena,—without a solid physiological and chemical education,—is it extraordinary that men, in other respects rational, should defend the most absurd notions?—that the doctrines of an impostor should prevail in Germany, and find disciples in other countries? Reason alone will not prevent whole nations from falling into the most abject superstitions; whilst even a child, whose mind has been duly developed and instructed, will repudiate the fear of ghosts and hobgoblins.

In looking back through years that have gone, into a retrospect of many happy days passed in the practical study of disease, many now in the full practice of their profession still remember the feelings of awe with which they contemplated the numerous sciences they had to study, the lectures they were doomed to attend, and the apparent impossibilities which had to be overcome, before they could throw aside the title of student, and emerge as medical practitioners from Hall and College. For the encouragement of those about to tread in the same path, let us add, that by moderate industry and perseverance all those difficulties were vanquished. Students may be assured that, with average talents, assiduity, and steady diligence, they may surmount all that now appears intricate or impracticable. There is no royal road to fame; the path is open to all, but it requires assiduous application to pass through it. By working well, an ample number of pleasures and recreations will be won. In the delights of social intercourse, and in the broad fields of general literature, medical pupils will find inexhaustible sources of gratification. We would especially recommend them to cultivate a taste for reading. Knowledge has been aptly compared to a tree, which runs straight for some time, and then parts itself into branches. These branches are laden with fruit, which requires but the labour of gathering, a labour which should prove one of love. Whoever has eaten of the fruit in the morning of life will return to the tree with increased zest in the heat, the burden, and the decline of the day.

"Comforts, yea! joys ineffable they find,
Who seek the prouder pleasures of the mind."

Literature and Philosophy, sincerely cherished, are friends for life; they multiply and refine our pleasures, soothe our afflictions, soften the pangs of sickness, and embellish and irradiate the most toilsome career. They must be pursued and cultivated, however, in a proper spirit, always remembering that the great Lord Bacon has said,—

"The greatest error of all the rest, is the mistaking or misplacing of the last or farthest end of knowledge: for men have entered into a desire of learning and knowledge, sometimes upon a natural curiosity, and inquisitive appetite; sometimes to entertain their minds with variety and delight; sometimes for ornament and reputation; and sometimes to enable them to victory of wit and contradiction; and most times for lucre and profession; and seldom sincerely to give a true account of their gift of reason, to the benefit and use of men: as if there were sought in knowledge a couch, whereupon to rest a searching and restless spirit; or a terrace, for a wandering and variable mind to walk up and down with a fair prospect; or a tower of state, for a proud mind to raise itself upon; or a fort or commanding ground for strife and contention; or a shop for profit or sale; and not a rich storehouse, for the glory of the Creator, and the relief of man's estate."

Reviews and Notices of Books.

Lectures on the Principles and Practice of Midwifery. By E. W. Murphy, A.M., M.D., Professor of Midwifery at University College, London, &c. Taylor, Walton, and Maberly. 1852.

The Dublin School has been fertile in great works on practical obstetrics. Its vast endowed lying-in hospitals present opportunities unequalled in any other part of the kingdom for the observation of the normal course and pathological complications of parturition on an extended scale. The physicians charged with the direction of these institutions, supported by the public funds, contract a debt to the profession and the public to throw the results of their experience into the common stock. We have even a right to expect that they shall contribute important improvements to the science which they have enjoyed such singular opportunities of cultivating. Nor have we been disappointed. They have discharged their immediate obligations to the patients, and their consequent duties to the profession, with equal zeal and success. Joseph Clarke, Collins, M'Clintock, and Hardy have put upon record a series of well-observed facts, which are referred to, in all countries, as the best-assured basis for many of the most important deductions of obstetric science, and of the best-established rules of practice.

The present work of Professor Murphy, although not strictly one of the same class as those referred to, resembles them in being the embodiment of a similar extensive experience. Professedly a course of lectures addressed to the students of University College, the book partakes necessarily more of the critical and the didactic character, than of a work having for its chief object the methodical exposition of a number of observations.

In forming a just estimate of the work, it is essential to define the scope it professes to embrace. It is not a complete systematic treatise on obstetrics. It may be said to be limited to the actual consideration of labour, natural and complicated; and of the pathological conditions supervening on delivery. It takes no account of the disease of gestation, of abortion, of morbid conditions of the ovum, or of many other subjects properly included in more comprehensive works. We are seldom disposed to quarrel with a book for being too small: we are too profoundly convinced, by a ponderous experience, of the truthfulness of the maxim which condemns a great book as a great evil; we even believe that there is a constant geometrical ratio between the size of a book and the resulting evil. "The greater the book, the greater the evil," is surely the reviewer's amended version of the maxim, who has too often the task of extricating a few arid grains of wheat from whole bushels of chaff. We complain of the present work, then, not because it is too small, but because upon many interesting topics which we might fairly expect to find discussed in it, we are denied the results of Dr. Murphy's experience.

The two first lectures are devoted to the obstetric bearings of the anatomy of the pelvis. The author especially directs attention to the *plane of the cavity*, as well as those of the brim and outlet. He properly observes that this is too much neglected; and yet it is impossible to overrate the importance of determining its proportions in cases of retarded labour or impaction. The cavity, no less than the brim or outlet, may be the seat of distortion. There is an admirable account of the bad results arising from undue size of the pelvis. Inversion of the vagina, subsequent prolapsus uteri, precipitate expulsion of the child, referred to. Dr. Murphy explains the mode in which, through the absence of the normal resistance to the descent of the uterus, irregular contraction, hæmorrhage, inversion of the uterus, and syncope, may result from excessive size of the pelvis. In addition to the forms of distorted pelvis which are strictly the consequence of disease, Dr. Murphy insists much upon a variety of he female pelvis observed among those subjected o severe toil, in whom excessive muscular development produces a corresponding approach to the orm and proportions of the pelvis of the male. Dr. Murphy characterizes this as the *masculine* pelvis.

In the third lecture, the author describes the muscular structure of the uterus, and explains his views of the order and effect of uterine contraction. These views differ essentially from those of Wigand, and are laboriously if not convincingly supported.

The fourth lecture is devoted to the mechanism of labour. The author adds the weight of his own observation in confirmation of the accuracy of the doctrines of Naegele, which have now received the general assent of the profession. His experience with regard to face-presentations is especially interesting, agreeing as it does with that of Boer, Collins, and others, in disproving the necessity of interference. He says—

> "The total number of cases which came under my notice during three years was 5699; of these there was not a single face-position which required aid in the delivery, nor did the labour in any occupy twenty-four hours. The only danger, therefore, which might arise from these positions, is the danger of meddling too much with them."

The author draws a valuable practical distinction between *uterine inertia* and *suspended uterine action*, as a cause of retention of the placenta. After the expulsion of the child, the great stimulus to the contraction of the uterus is withdrawn. Where the abdominal muscles are strong, they contract upon the retiring uterus, compressing the intestines, and consequently the uterus, upon all sides. The stimulus thus supplied is usually sufficient, but the abdominal muscles are too often reduced to a state of atony, and then the placenta is retained, not from any want of power in the uterus to expel it, but from a want of sufficient stimulus to cause the uterus to contract. There is power in the uterus, but that power is not excited to action. It is for this reason that the pressure of the hand on the fundus of the uterus during the expulsion of the child is found so useful. It also explains the utility of the bandage after delivery, which some practitioners have recently doubted.

The fifth and sixth lectures treat of the conduct of natural labour. The rules inculcated by the author are professedly drawn from physiological principles; and we cannot help a feeling of surprise and regret, that a physician whose precepts with regard to natural labour are so directed, should advocate the extension of chloroformization to physiological labour.

The seventh lecture contains a practical view of the causes of "tedious labour," which we recommend to the attention of our readers without further criticism. In the three succeeding lectures, "laborious labour" is discussed with candour, although we might fairly take exception to some of the author's views. Rigid justice, too, would point to an instance of inconsistency, upon which we have before remarked. The author condemns the argument in favour of a speedy resort to the forceps in cases where the head is making slow progress, which is thus expressed by Dr. Burns—

> "Granting the recovery to be excellent, is it no consideration that the patient has been subject to twelve, perhaps twenty-four, hours of suffering of body and anxiety of mind, which might have been spared? Why" (the author asks) "should your patient be exposed to *any* bodily suffering or anxiety of mind, if it were in your power to relieve her from her miseries? On this principle the forceps might be used (as indeed they have been used) in every tenth case."

How, then, will Dr. Murphy defend the use of chloroform in analogous cases? As against the forceps his argument is sound, is it less so when applied to chloroformization? We have always held that the frequent use of the forceps and that of chloroform in ordinary labour are equally manifest derelictions from the laws of physiology. The history of the introduction of both these agents presents a striking illustration of this proposition. At p. 209, Dr. Murphy adverts in terms of reprobation, just, but in our opinion self-condemnatory, to the ignorant boast of Chamberlin, "that by his manual operation (the forceps) a labour may be despatched, in the least difficulty, with *fewer pains*, and sooner" than nature could, "to the great advantage, and without danger, both of woman and child." Who does not remember with what perfect identity of reasoning it was sought to apply the newly-discovered anæsthetic properties of ether and chloroform to obstetric practice?

The next three lectures are devoted to the history and description of obstetric operations. Not to dwell upon minor subjects, upon which the author enunciates opinions at variance with those of some of his brethren, we will observe that he recognises the utility of the long forceps in certain cases, when the head is arrested at the brim of the pelvis. Herein Dr. Murphy differs remarkably from one of the most distinguished heads of the Dublin school, Dr. Collins. Along with most accoucheurs of the present day, Professor Murphy holds the vectis in small esteem, and repudiates the idea of its being an efficient substitute for the forceps. We ourselves rather regard it as the most easy and convenient ally of the meddlesome practitioner; and we are altogether at a loss to comprehend what obstetric necessities can exist to justify the resort to this instrument so frequently as Dr. Copeman—its most recent advocate—would have us believe he encountered in his practice. The operation for the induction of premature labour is passed over much too summarily. It is discussed in the compass of a page. It is no doubt owing to this circumstance that the author refers to the induction of labour only at the *seventh month*, when we are satisfied that a living child cannot be born at the ninth month. We think Dr. Murphy should have informed his pupils, that Dr. Thomas Cooper long ago extended his operation to cases of still greater obstruction, *with a view to the safety of the mother only*. He clearly showed the propriety of inducing labour at the fifth month in certain cases of extreme contraction, sacrificing the child thus early in order to save the mother from the dangers of craniotomy.

Aphorisms have long come to be almost the peculiar attribute of obstetric literature. Dr. Murphy accordingly concludes the first part of his work with a summary of the principles and rules laid down in the preceding lectures, arranged in the aphoristic form. As an aid to the student in acquiring and retaining the information contained in the book, this summary is calculated to be serviceable. But as aphorisms, they certainly fail somewhat in the essential characteristics of terseness and brevity.

The second part of Dr. Murphy's work commences with the subject of Preternatural and Complex Parturition. Passing over presentations of the inferior extremities and of the arm, we proceed to offer a few observations upon his views of hæmorrhage, to the enunciation of which a proportion of space is devoted commensurate with the interest of the subject. It is well known that Dr. Murphy adopts to a great extent the views of Drs. Hamilton, Radford, and Simpson, upon the sources of hæmorrhage in the case of placenta prævia, and we naturally expected to find a full exposition of the arguments upon which those views are based. He distinctly contends that the detached surface of the placenta furnishes blood, as well as the corresponding denuded surface of the uterus; but we do not perceive that he has been more successful than his predecessors in proving that the quantity which may so escape is of the least practical importance. The very circumstances Dr. Murphy refers to—the spiral course of the utero-placental arteries lessening the impetus of the circulation—the slowness of the current through the cavernous structure of the placenta, so clearly pointed out by John Hunter—are conclusive against the opinion that blood can flow in any quantity from the placental surface. Neither is the author's account (p. 332-3) of the mode in which he conceives the hæmorrhage to be arrested very intelligible; and we are unable to trace any logical premises to warrant the following conclusion:—

> "The natural means, therefore, of checking unavoidable hæmorrhage, is the complete separation of the placenta from its attachment to the cervix of the uterus."—p. 333.

To say the truth, the author, although evidently desirous of supporting the doctrine of the placental origin of the bood in unavoidable hæmorrhage, is by no means prepared to carry to any extent in practice his confidence in this "natural means of checking" it. He indicates, indeed, some circumstances, in which he believes artificial separation of the placenta to be the preferable course; and he dwells somewhat upon those cases where hæmorrhage has ceased on the spontaneous separation of that organ. He does not, however, state—and we think this a grave omission—that cessation of hæmorrhage on the separation, whether spontaneous or artificial, of the placenta, is by no means constant. We are glad to observe, therefore, that Dr. Murphy, although contending that separation of the placenta is "safer for the mother," shrinks before the almost certain prospect of destroying the child, and hesitates to recommend the practice without considerable limitations.

Notwithstanding a somewhat laboured attempt to support the theory of the placental origin of the hæmorrhage, the practice he recommends differs little, if at all, from the rules which have long been established. In a review so detailed as Dr. Murphy has taken of the causes and sources of hæmorrhage before delivery, we also think it an omission that he does not advert to the researches of Dr. Robert Barnes, which have clearly shown that many cases of hæmorrhage before delivery are owing to disease of the placenta, which may be normally situated, especially fatty degeneration.*

One of the best lectures in the work is that on Rupture of the Womb. The author's researches into the causes of this event are both original and important. He divides these causes into mechanical and pathological. He enters a most emphatic protest against the incautious use of ergot of rye, adducing many illustrations to prove how frequently this drug has been the means of causing rupture. The author had observed that rupture of the uterus occurred where no mechanical causes existed adequate to explain it. He says that he was led to examine more carefully into the causes of laceration. He found that the uterus generally exhibited one or another morbid alteration. With reference to the treatment, Dr. Murphy urges one point, which we think calls for serious consideration. When the child has escaped into the abdomen, instead of seeking to extract the child in the usual way, he strongly advises gastrotomy, on the ground that this operation offers the best chance of recovery to the mother.

Two lectures are devoted to an elaborate historical and scientific discussion of Etherization. Dr. Murphy's views upon this question are well known. We will not, on this occasion, renew a controversy which we believe could not now be resuscitated with advantage. We prefer passing from the criticism of views which differ so widely from our own, to express our approval of the manner in which the author has treated the remaining subjects of his course. In the concluding lectures, the practitioner and the student will derive some useful information concerning the pathology and treatment of convalescence after parturition, post-partum inflammations, phlegmasia dolens, puerperal fevers, and puerperal mania.

A Compendious History of Small-Pox; with an Account of a Mode of Treatment, Constitutional and Local, which renders the Disease comparatively harmless, and prevents those Deformities occasioned by the Ulceration of the Skin. By HENRY GEORGE, Surgeon, &c. 8vo, pp. 134. London. 1852.

IN writing the history of small-pox, all authors appear animated by a desire to show the great antiquity of the disease, apparently imagining that the more remote they can prove the period to have been when this scourge first afflicted mankind, the greater knowledge will they be thought to evince of ancient lore, and the greater the meed of praise which they will receive from the literary portion of the public. This is not a foible, however, of our own time. Rhazes, the Arabian physician, who flourished about the tenth century, and who appears to be the author to whom we are indebted for the first description of small-pox, anxiously tried to prove that Galen must have been acquainted with the disease. Failing in this, he certainly shows that the disorder was well known to Aaron, an Alexandrian Jew, who practised as a physician in the seventh century; for he quotes from his treatise, which has since been lost, the following passage on its treatment:—"Et cum sunt digestæ (the pustules) jaceat patiens super farina risis et fumigetur cum foliis myrti olivarumque et desiccabuntur." Beyond these facts, we know nothing of the origin of small-pox; neither is our knowledge increased by a perusal of the interesting pages of Mr. George, for his investigations only lead him to the conclusion—

> "It must appear extraordinary that the origin of such a horrid pestilence should be enveloped in so much obscurity, and that the researches of so many talented individuals should have led to no other positive conclusion than the great antiquity of the disease; when and where it first appeared still remain points of doubt and investigation — circumstances which appear destined to elude our closest inquiries." —(p. 18.)

The elucidation of the origin of small-pox is not the only, nor indeed the real, inducement which has led Mr. George to publish a second edition of his treatise—for it is the second edition, though the fact is not mentioned on the title-page —as he tells us, in his preface, that

> "Having (under Providence) been successful in mitigating the great sufferings of persons afflicted with the loathsome disorder of small-pox, I am naturally most desirous of increasing the knowledge and practice of the treatment I recommend."

This treatment consists in the selection of those remedies, and in the use of that diet, "which are best calculated to sooth and allay the disturbances, based in debility, which are met with in this disease."—(p. 58.) With this object, the author resorts principally to mild nourishing food, to the administration of stimulants, as the sesquicarbonate of ammonia, ether, &c., and occasionally to the use of tonics, especially bark and ferruginous preparations. The points, however, on which he most relies are, the local application of powdered camphor to all the parts where the irritation is very great, especially around the throat when swollen, and the free use of some absorbing powder to all the surfaces of the body covered with the eruption, the powder used generally consisting of calamine. Several cases are detailed to illustrate the practice recommended, which bear strong testimony to its utility. This is also partly proved in another way by the testimony of Dr. Gregory, but in a manner which Mr. George does not approve of. It appears that in 1831 these gentlemen met in consultation, on which occasion Dr. Gregory informed Mr. George that he had seen his paper, recommending the application of an absorbing powder to the variolous pustules, and that he had also been spoken to on the subject by Sir Henry Halford. In the next edition of the "Theory and Practice of Physic," published in 1835, Dr. Gregory recommended that the whole surface of the body should be covered with some dry, pulverulent substance, as dried flour, powdered starch, or calamine, but does not allude in any way to Mr. George; and to add to the latter gentleman's annoyance, Dr. Copland, in his "Dictionary of Practical Medicine," gives Dr. Gregory the credit of introducing this practice.

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* Medico-Chirurgical Transactions, vol. xxxiv.

We regret that we cannot say anything to soothe Mr. George's angry feelings, because it appears to us, in fact, that neither this gentleman nor Dr. Gregory can prove the slightest claim to the *important discovery*, the credit being evidently due to our ancient Jewish friend, Aaron, as is proved by the quotation from Rhazes. At the same time, we may say thus much, that Mr. George appears to have revived the practice, and doubtless his suggestion led to its adoption by Dr. Gregory, who ought consequently to have acknowledged his obligation. Putting aside such a trivial dispute, however, we can confidently recommend the persual of Mr. George's treatise to our readers, as containing matter of interest and importance, and as being evidently the production of a judicious and thoughtful practitioner.

A Glance at the Introductory Lectures.

DELIVERED AT THE

VARIOUS MEDICAL SCHOOLS IN LONDON.

AT THE OPENING OF THE SESSION 1852.

ST. BARTHOLOMEW'S HOSPITAL.

INTRODUCTORY LECTURE BY DR. BLACK.

THE 1st of October has been celebrated at this venerable institution as in the preceding years; the same crowds of anxious-looking first-year's men, of their more advanced and more shrewd fellow pupils, of former alumni both young and of mature age, and of friends and supporters of St. Bartholomew's. Indeed, when the whole company is scattered in the great hall, where the conversazione is held after the lecture, it is puzzling to understand how all the people could have been squeezed into the exiguous theatre where the introductory discourse is delivered. At St. Thomas's it is just the reverse; you hear the lecture in a handsome hall, and have to work through a small room for your coffee. But if the hearers at St. Bartholomew's are closely packed, it seems as if the explosive propensities, as with fire-arms, became greater. The enthusiastic reception of the medical officers and lecturers was terrific; and here and there a well-known and popular name, uttered by one of the audience, would act as the light on the touchhole, and bring forth another volley. At last the lecturer, after being himself most heartily welcomed, began addressing his numerous hearers.

He first alluded to the importance of the institution to which he had the honour of belonging, and gave the governors a due meed of praise for having in every way favoured medical instruction at St. Bartholomew's Hospital. Dr. Black's exordium was extremely becoming, and full of unaffected humility. He then pointed out, in very forcible and well-chosen language, of what importance it was for the pupils to take advantage of the few years which were set apart for their medical studies; he showed them the duties and importance of their profession, and exhorted them to prefer the cultivation of the intellect to that of sense. They should not neglect their literary and scientific attainments, and should possess themselves, in short, with all the accomplishments of gentlemen.

The lecturer showed how painful and humbling was ignorance at the bed-side of the patient, and warned his young friends against allowing themselves to be placed in such a painful situation. He drew a vivid picture of the progress of our medical knowledge, which progress was not always by addition, but by remodelling and modifications of what is already known. Increase of knowledge leads to refinement and harmony, the all-wise plan of nature becomes more and more palpable, and the philosopher perceives that the same law which causes the globular tear to run down the cheek, regulates the course of the countless heavenly orbs.

Returning to the details of the curriculum, Dr. Black stated that the students could not do better than take up the various branches of medical knowledge in the order laid down by their teachers; the young men were not to perplex themselves by mixing various subdivisions together, and would find great benefit in placing every pursuit in its proper place. Passing then to the consideration of particular subjects, the lecturer pointed out that surgery flows from anatomy, as medicine from physiology—art being none else but science carried to its results. All the physical sciences were, indeed, beautifully connected; as, for instance, medicine with physics, hydrostatics, &c.

Dr. Black here paid a tribute of respect to Dr. Arnott, not only for the ingenious manner in which he had made use of hydrostatics to prevent dangerous complications in disease, but also for the disinterestedness which that physician had shown in refusing any pecuniary advantage from his invention, for fear the poor might not benefit by it. (The lecturer, if he had felt so inclined, might here have contrasted, also to Dr. Arnott's praise, the water-bed with James's powders.)

Medicine was also most usefully connected with electricity and galvanism, and in fact all our preliminary studies tended to prepare us for the knowledge of disease. By application and assiduous perseverance, the young men of the present age might perhaps succeed in removing or diminishing some of the uncertainty which now existed in medical practice; and the lecturer thought that the progress of medicine had perhaps been slower than that of other sciences, because there had always been so much to undo. He advised his young friends not to bow down too slavishly to authority; and stated that, on the other hand, false theories had in general sprung up from too hasty generalization. Sterne had justly said, that a man who had an hypothesis made everything bend to it.

Dr. Black now reminded the pupils that they would find every assistance in their teachers, both at the bed-side and in the lecture-room; but that they must themselves steadily labour in the pursuit of knowledge, for receiving the latter passively was scarcely of any avail. Harvey was here cited as a great example—as one who had won his celebrity in this very institution, by constant application and skilful observation of nature. We might all by these means, and our individual efforts, advance science, for "labour is the common duty and the common privilege of all." The pupils had, in the very room in which they were assembled, bright examples to follow, their teachers here present, having all laboured with zeal, and thus won the position they held.

Dr. Black finally alluded to the baneful effects of quackery, and exhorted his young hearers to be guided by benevolence and religion.

The company adjourned to the great hall of the hospital, where refreshments were served out. The *conversazione* was of a very animated kind, much attention being attracted by valuable specimens of materia medica, microscopes, and surgical instruments and appliances. The visitors who had not seen this hospital for some years, must have been greatly struck by the handsome appearance of the four structures forming the quadrangle, which are now quite rebuilt, and look defying ages to come. Besides this outward appearance, many improvements have been introduced in the interior, in the shape of additional side rooms, kitchens, and the raising of the roof of the upper or venereal wards.

ST. GEORGE'S HOSPITAL.

No regular introductory lecture was given at this School, but, in accordance with the custom at this Institution, the prizes awarded for the past session to the various successful candidates. The chair was occupied by Sir C. M. Clarke, who was supported by Sir Peregrine Maitland. In some remarks preliminary to the distribution of prizes, Mr. Cæsar Hawkins took occasion to comment upon the great advantages which students of the present day possessed over those who studied some years back. He alluded more particularly to the incentives to exertion which existed in that school in the shape of scholarships and prizes. He mentioned particularly the prizes instituted by Sir B. Brodie, Mr. Serjeant Thompson, and the gift of an appointment of assistant-surgeon in the Hon. East India Company's service. The chairman then distributed the prizes as follows :—

Scholarship.—Mr. Christopher Bulteel, Mr. J. C. Annesley, and Mr. H. W. Bellew.

Sir Benjamin Brodie's Clinical Prize.—Mr. W. R. Cornish.

The Thompson Medal.—Mr. W. R. Cornish.

Assistant-Surgeoncy in the Hon. E.I.C. Service.—Mr. George Nayler.

Anatomy.—Senior Class, Prize, Mr. J. C. Penny. Certificate, Mr. Oscar Byrne. Junior Class, Prize, Mr. Christopher Bulteel. Certificates, Mr. H. W. Bellew, Mr. P. F. Bellew, Mr. J. C. Annesley.

Physiology.—Prize, Mr. J. C. Penny. Certificate, Mr. G. Nayler.

Botany.—Prize, Mr. Dickinson.

Chemistry.—Prize, Mr. F. W. Duke. Certificate, Mr. P. F. Bellew.

Practical Chemistry.—Prize, Mr. W. R. Cornish. Certificate, Mr. Pomery. Certificates (Æq.,) Mr. Annesley, Mr. C. Bulteel, Mr. Halse.

Materia Medica.—Prize, Mr. Christopher Bulteel. Certificates, Mr. J. C. Annesley, Mr. H. W. Bellew.

Medical Jurisprudence.—Prize, Mr. W. R. Cornish. Certificate, Mr. Theodore Duka.

Midwifery.—Prize, Mr. Duncan, Mr. J. H. Willis. Certificates (Æq.,) M. T. Duka, Mr. E. L. Byers.

Practice of Physic.—Prize, Mr. C. Royston. Additional Prize, Mr. J. R. Davern. Certificates, Mr. G. Nayler, Mr. J. Nicholls.

Surgery.—Prize, Mr. J. R. Davern. Certificates, Mr. J. Nicholls.

The Chairman then addressed some observations of advice to the students on their commencing their year of study, and impressed on them the absolute necessity of patient, careful, and industrious study, without which, success in their profession was hopeless; of cultivating gentlemanly habits, feelings of humanity and commiseration for their suffering fellow-mortals; good temper; and, above all, religious sentiments and practices. He pointed out as amongst the books which should be found in every medical student's library, Hippocrates, Celsus, Sydenham, "Brande's Dictionary of Science and Art," and "Abercrombie on Moral and Intellectual Culture."

The proceedings closed with a vote of thanks to the Chairman.

GUY'S HOSPITAL.

DR. TAYLOR'S INTRODUCTORY LECTURE.

The attendance of pupils and friends on the occasion of Dr. Taylor's introductory lecture, was very numerous—equally so with former years—and the theatre had a very animated appearance. The contrast between the beaming physiognomy of the alumni, and the much less fiery aspect of even the younger members of the profession, was very striking: with the former, all was liveliness, hope, and trust in the future; with the latter, who have already tasted some of the bitters of a medical career, there was an evident thoughtfulness, and a seemingly melancholy glance at the past. May the coming generation of professional men experience less hardships than their seniors!

A very cheering sight before entering the lecture-room was the handsome centre and southern wing of the new building, now almost completed. The pile is of a very commanding aspect, lofty, massive, and fully in keeping with its noble destination. It is a pity that this beautiful structure is, and will ever be, in some degree, hidden from the public eye by being erected *within* the precincts of old Guy's. Much good is expected from the lofty ventilator, which forms a conspicuous part of the building, and which, being easily seen to rise on high from all parts of the City, will be the first *sanitary monument* raised in honour of the hygienic tendencies of the age.

The lecturers and medical officers of the hospital were warmly greeted as they entered the room. It must have been very gratifying to them to be thus received, not only by the pupils, but by a great proportion of former students, who by their own labours in the professional field have learnt to appreciate the talents and the kindness of their teachers.

We were sorry to find that two or three of the medical officers were absent. This non-attendance, it is hoped, was unavoidable, for on such an occasion the pupils should see *all* their guides and advisers before them, joining in the good work, and encouraging them at the outset, or in the progress of their studies.

Dr. Taylor, who was welcomed with much warmth, began by stating that he could throw no novelty into his discourse, but that he would endeavour to give the junior pupils an outline of the manner in which their studies should be pursued. The lecturer now sketched out the noble aims of our profession, and its difficulties; the importance for the student to make good use of the first years of his pupilage, and not to be afraid of steady, methodically arranged labour. The various branches to be mastered were numerous, but they had been skilfully arranged and placed in systematic order by the colleges and schools, so that the acquirement of professional knowledge was divested of some of its asperities. The great value of anatomy and physiology was now pointed out, and it was justly said that our anatomical knowledge should be carried so far, that either medically or surgically the human body should for us have no skin, and be almost diaphanous. (*We* think that pupils do not, in general, sufficiently study the numerous processes of bone and the situation of the viscera, *through the skin.*)

Dr. Taylor advised the young men not to devote their *exclusive* attention to any of the accessory branches of medical knowledge, instancing chemistry in particular, as the studies should be of a more extended kind. This applied both to pupils and practitioners. The lecturer then took a glance at pathological and pharmaceutical chemistry, and it became interesting to notice how Dr. Taylor, no mean chemist himself, warned his young friends from considering the human frame as a mere chemical laboratory. He showed by an ingenious illustration (the incubation of the egg) that we might analyze the primary elements, divide and subdivide them, but that none but a mysterious *vital* force could account for the albumen taking the shape and appearance of feathers. "Do not confound the *vital* with the *chemical* force; and recollect that the former is *not* a modification of the latter."

A word of well-merited eulogy was then spoken regarding the late lecturer on chemistry, Mr. Aikin, who retires after twenty-nine years faithful services.

Dr. Taylor dwelt for a little while on the importance of materia medica, but did not allude to *pure therapeutics*. (This can hardly be wondered at, since it seems the custom to confound the knowledge of drugs, plants, and minerals, and their effects upon the frame, with the actual and distinct science of therapeutics, which latter teaches the means of modifying the human economy, so as to substitute physiological for pathological action, independently of the consideration of drugs. The prospectuses always say—Materia medica and therapeutics; whilst it should be the reverse; first the object in view, then the instrument; first the science, then the art.)

Dr. Taylor then advised his young hearers carefully to take notes of the most important cases which come before them. He justly complained of the unconnected, loose manner in which cases are usually published in the medical journals, and how the reporters generally lost sight of the main point to stop at trifles and puerilities. Herein we agree with Dr. Taylor, (though we would not be too sweeping,) and we have endeavoured in our "Mirror" to give the example of conciseness, apposite remarks, and practical utility. The lecturer went on observing, as to the reporting of cases, that "reading made a full man, and writing a correct man."

Passing then to the consideration of the heresies now existing in our profession, Dr. Taylor pointed out their baneful effects, and very properly warned his hearers not to fall into the common mistake of hastily ascribing any change in the aspect of the disease to the immediate action of the remedies used. On this head, the lecturer related an anecdote, which very amusingly illustrates the point. A gentleman, a martyr to rheumatic pains, and who had tried a vast number of means of relief, at last appealed to homœopathy, and took with a little curette, or homœopathic spoon, three of the precious globules on going to bed. That night was passed without pain, sleep came down upon the patient's pillow, and the pains had vanished. This result made the gentleman quite enthusiastic; homœopathy and its globules were triumphant, and could not be sufficiently exalted by the grateful patient. But the pains returned in a few days, and recourse was again had to the globule box; but as the gentleman seized the little spoon to take up his homœopathic medicine, he saw adherent to it the three globules which he fancied he had swallowed a few evenings previously. This circumstance rather cooled his enthusiasm.

Dr. Taylor had searched in vain for sulphuric acid in the globules said to contain some, and was answered by a homœopath, that by trituration the acid had become so spiritualized and etherialized, that the coarse tests of chemistry were insufficient to trace it. The lecturer reprobated, in strong terms, the ridiculous fallacies in which Dr. Gregory, a professor at an university of renown, and his brother mesmerists, took a share, in exhibiting diaphanous patients and prophetizing sleepers. Dr. Taylor showed that the study of medicine is far from leading to infidelity, as some have supposed; that the medical men who have been infidels would have been so in any other profession, and that the contemplation of the minute phenomena with which the student in medicine becomes familiar, renders his mind more ready to bow before the Creator. The lecturer concluded his excellent discourse by moral advice to the students of a very exalted and admirable kind. He told them, moreover, that at Guy's there was no favouritism, that no letters of introduction were necessary, but that every student would make a friend of his teacher by good conduct, assiduity, and anxiety to acquire knowledge.

KING'S COLLEGE HOSPITAL.

DR. TODD'S INTRODUCTORY ADDRESS.

THE session was opened with an introductory address by Dr. Todd. The principal of the College, Dr. Jelf, was in the chair, supported by the professors and various friends of the institution. The theatre, though moderately full, was not by any means crowded.

Dr. Todd commenced by referring to the progress of the College from its earliest commencement, and to the various great names which had been associated with it. After paying a graceful and feeling tribute to the late Mr. Daniell, his "best friend," he proceeded to speak of the improvements which had been effected in education since the College had been first established. Originally the student had had so many lectures to attend in a day, that he had scarcely time for study, and his mind was distracted by their multiplicity. Thanks, however, to the Society of Apothecaries, who had done much to improve education, the pupil now only required to attend three lectures a day, and these were so arranged as to afford him the greatest possible opportunity of deriving advantage from tutorial instruction—a mode of study which that College had endeavoured to foster and maintain. After alluding in terms of commendation to Dr. Beale, who has established a laboratory near the College for those who wished to prosecute microscopical and chemical researches in connexion with pathology and clinical medicine, he proceeded to speak of the hospital, and the great support which it had received. No good school could exist without such an aid to instruction; for it was to the study of disease at the bed-side that all preliminary knowledge was ultimately to tend. He spoke in high terms of the rewards for industry which the College authorities held out, not so much in respect to prizes, which had their drawbacks, but with regard to scholarships, the working of which they had found to be most beneficial. As an instance, he might mention that their first scholar was Mr. Bowman. (Applause.) The fund for scholarships now amounted to £520 per annum. These scholarships were not intended for *poor* persons, but for those who had distinguished themselves, and had passed an examination. Religious instruction was essential to a student of that institution, and the College was founded on that ground. After earnestly exhorting his young hearers to industry, gentlemanly deportment, and the avoidance of quackery, he assured them that, if properly followed, no profession offered better advantages for making a competency than their own. He concluded an eloquent address amid much applause.

MIDDLESEX HOSPITAL SCHOOL OF MEDICINE.

INTRODUCTORY LECTURE BY DR. STEWART.

The Introductory Lecture was delivered by Dr. A. P. Stewart. After one or two preliminary remarks, Dr. Stewart said: "Some of you are but just enlisting in the ranks: others who have passed through their initiatory exercises, and others still who are nearly ready for active service, are returning from too brief a period of bodily and mental relaxation, to engage anew in the honourable strife, which may, and we trust will, on a future day, conduct to professional success and scientific renown. The career on which you are, one and all, now entering, is so full of varied and solemn responsibility, that to inculcate its duties, and to exhaust the motives that should tell with combined and resistless force on all who embark in it, would require, not one, but many such addressess as that which I am now privileged to deliver in your hearing. But there are some aspects of the healing art, on which the fresh recruit cannot gaze too early, and to which the hoary veteran never wearies in reverting—aspects so directly and powerfully influential in promoting just and elevated views of this sacred calling, that I think we cannot employ our time to better purpose than in taking a rapid glance at them. I propose, then, to speak, first, of our medical ancestry; secondly, of the nature and duties of the medical calling; and if time shall permit, thirdly, of the needful training, with special reference to the duties alike of teachers and pupils; and lastly, of the spirit which from first to last should animate and actuate those who engage in so responsible a profession."

In adverting at great length to, and in taking a most comprehensive view of our "medical ancestry," the lecturer remarked that the history of medicine is to a large extent the history of civilization.

Dr. Stewart then gave an interesting sketch of the progress of the medical art in its legitimate sense, from the time of the father of medicine, Hippocrates, to the present period, and which we regret our crowded columns prevent us from noticing in detail.

After this survey of the first class of the practisers of medicine or the healing art, the lecturer, in referring to the second class, remarked, that "others arose who, loving the fame, the influence, and the pelf their official eminence procured for them, took effectual means for securing a permanent monopoly of their privilege, altogether irrespective of their knowledge or skill, at the same time exhibiting all the leading features of quackery in every age and in every land—concealment, pompous pretension, collusion, and rapacity. They admitted no patient without the permission of the god; and as they themselves dictated the responses, no serious or probably fatal cases were allowed to cross the threshold; and often accomplices came, pretending to labour under severe diseases, and noised abroad their marvellous cures. After the system had lasted for centuries, Aristophanes, that irreverent jester and merciless exposure of shame, rather rudely drew aside the veil that shrouded their solemn farces from the public gaze. Some time later, we read of Chrysippus, a most successful adventurer, changing, by his prodigious garrulity—by sheer force of jaw—all the most approved doctrines, and discarding many of the most effective remedies. Later still, in Rome, we find the celebrated Asclepiades of Bithynia, with a shrewd eye for the weak points of those he had to do with, vilifying the principles and practice of his predecessors, proclaiming his discovery of a new and royal road to the cure of disease, and gratifying the tastes of his patients, like a good, kind soul, by allowing them to eat and drink whatever they pleased. Next comes Thessalus, a man of mean birth and defective education, who, by cunning artifice, and treating with scorn all his rivals and predecessors, acquired great wealth, and a high reputation; and Alexander, the false prophet, celebrated by Lucian as the most consummate villain of his time. Then come the monkish pretenders to medical skill in the middle ages, who made medicine a laughing-stock for centuries; Philippus, Theophrastus, Bombast, Paracelsus, the most illustrious prince of quacks, who publicly burned the writings of Galen and Avicenna, and died miserably at an early age, with the secret of immortality in his pocket. Not long thereafter, we meet in London with Francis Anthony, who commenced practice with a panacea made from gold; and with the sprightly Dr. Andrew Boorde, the father of all "merry Andrews"—that dignified class of practitioners who blow the trumpet before them in the market-place. Next steps on the stage the renowned swindler, Joseph Balsamo, who, under the title of Count Cagliostro, with his philosopher's stone, his elixir of life, and his bewitching countess, found wealth, rank, and fashion everywhere his obsequious attendants. Every-day adventurers and system-making medicine-mongers bring up the rear: Perkins, with his metallic tractors; St. John Long, with his counter-irritants; canny John Wood, from north of the Tweed, fleecing John Bull under the name of Lignum; the illustrious professors of the College of Health: those whose odylic second-sight enables them to "tell the secrets of the world unknown;" those who profess to cure every disease by packing in a wet sheet, and flushing the sewers of the animal microcosm twice a day with oceans of cold water; and, lastly, those extinguishers of revolutions with rose-water, who tell you they can cure the most formidable maladies with inappreciable quantities of medicine, and, ask you to believe, that, in the hands of the initiated, the action of a pestle, or the agitation of a fluid, can develop energies which we have hitherto, in our simplicity, ascribed to the Almighty Creator, of whom alone the law does not hold true—" ex nihilo nihil fit." You see your calling, gentlemen. Look on this picture, and on that, and make your choice between a noble ancestry, on the one hand, and, on the other, a pedigree of self-seeking adventurers."

Dr. Stewart concluded his lecture by a complete refutation of the thoughtless statement, that medical men *live* by disease, and cannot naturally be expected to bestir themselves for its removal, and by an energetic appeal to the intelligence and conscience of his audience; exhorting them, by every means in their power, to seek the *prevention*, as well as the *cure*, of disease, reminding them, if they would correctly estimate the full weight of responsibility they take upon themselves in entering on the practice of the healing art, never to forget that the body is a brittle casket that encloses a gem of priceless value.

ST. THOMAS'S HOSPITAL.

THE INTRODUCTORY ADDRESS DELIVERED BY MR. GRAINGER.

Who commenced by alluding to the responsibilities attaching to the office of instructor, which in the case of the medical teacher, owing to the high import of the subject to human life and happiness, assumed a still higher character. He then proceeded to define and illustrate the exact nature and scope of medical science, and the mode in which it ought to be cultivated; showing the evils that in former times had resulted from an exclusive adoption either of the empirical or speculative system of study, and proving that the only one mode of investigating disease was that of inductive reasoning, in which are so happily combined the observation and interpretation of phenomena, with that process of mental analysis by which general principles and laws are discovered. In this manner medicine was brought into the great circle of the inductive sciences—a thing in itself of great moment, rich in future promise, and calculated, when fully realized, to secure for this science, a degree of exactness which is at present too much the custom to regard as the exclusive privilege of physical research. As to general laws, their supreme importance was shown by this, that being the scientific expressions of the *modus operandi* according to which the vital forces act, they must constitute the end and aim of all study. To know the laws of any force is to know all that it is given to man to discover of the force itself. The great discovery of Newton—that starting point of physical science—gave us no more real insight into the essence of attraction than that possessed by the Egyptian astronomers; he only told us the true and exact mode in which the force that draws together the ultimate particles of matter and the masses of the universe operates; he found out the law, not the force of attraction. If, then, we could, by the observation of phenomena, and by the process of induction, find out the laws of the normal and abnormal actions of the animal economy, we should exactly accomplish for the science of life what Newton did for that of physics, and Dalton for that of chemistry. All this assumes that there are in the living body forces which act according to fixed and definite laws; and of these the lecturer proceeded to give examples both in health and disease; and afterwards explained that, although to some all this scientific analysis and reasoning might appear to be of little utility, it was against the first condition of a profession like that of medicine to attain success in its daily duties, unless the practitioner was content to remain a student—to retain in all their freshness and vigour the great principles of organization, of physiology and pathology, acquired in the lecture-room, and illustrated in the museum and wards of the hospital. Although few could aspire to that kind of intuitive perception of the inter-relations of co-existing and subtle phenomena, which is one of the special attributes of genius, all might hope, by patient observation, and a judicious application of the talents they possessed, to acquire that special frame of mind which is alone suited to scientific analysis. Mr. Grainger stated that for the medical student there was no mental discipline so well adapted to his wants as that springing from the cultivation of comparative and philosophical anatomy; and as an illustration, he selected the central organ of the circulation—the heart. Careful descriptive anatomists, especially of the German school, minutely distinguish in the right ventrical of man that funnel-shaped portion, readily recognised, especially in an injected specimen, which gives origin to the pulmonic artery, under the name of *conus arteriosus*. Further, there is a certain muscular plane between the arterial and venous orifice of this ventrical, also easily recognisable; and lastly, there is the general cavity of this right chamber of the heart. Now, what do these three parts signify? The answer is to be found in the comparative anatomy of the organ, and this answer is essential to a true knowledge of the human anatomy. If the occasion were suitable, it would not be difficult to show that the conus arteriosus in man is the typical representative of the ventricle, which in the reptile gives origin to the pulmonic artery: that the muscular plane is the homologue of that imperfect septum of the reptile, dividing what should be called the pulmonic ventricle from the ventricle of the left aorta of that class of animals; whilst the general cavity of the human right ventricle has in reality no essential structural relation to the pulmonic artery, though in common descriptions it is said to give origin to that vessel, but is the type of the ventricle which in the turtle, &c., belongs to the left aorta. In this way the student is enabled to comprehend what is the true character of the so-called single right ventricle of man; he learns that it is in reality a combination of two fundamentally distinct ventricles; and he further finds that it is necessary to distinguish, in connection with the right ventricle, two typical septa instead of one—that is to say, the well-known septum ventriculorum, which essentially divides the two ventricles belonging to what in the reptile are called the left and right aortæ; and the septum arteriæ pulmonalis, dividing the true pulmonic ventricle—the conus arteriosus of the German school—and the left aortic ventricle. This may appear to be a somewhat unnecessarily involved account, and yet it leads to truths, in addition to those just explained, which would amply repay much more trouble. The interpretation of the right ventricle here given is in the first place the only clue to one of the most interesting classes of malformations of the human heart—those, namely, of interventricular communication. In the second place, it affords the true key to the development of the fœtal heart. But more than all, it enables the anatomist—by the discovery of a new ventricle, and by thus demonstrating that the heart, instead of being, as it is usually conceived to be, quadripartite, is essentially quintuple—three ventricles and two auricles—to rival, if not more than rival, the astronomer, who adds an additional member to our system by the discovery of a new planet.

After having illustrated the application of chemistry, materia medica, &c., Mr. Grainger proceeded:—

In regard to your medical studies, I would also remark, that there is one branch, which, although it has hitherto received no separate consideration, is yet of supreme importance to the great mass of mankind. I allude to that great department which may be designated *Preventive Medicine*. If it be creditable to the surgeon to save a limb by his skilful treatment, it is equally honourable to the physician, by judicious precautions to prevent or to limit the incursions of disease. If we consult the statistics of mortality. it will appear that the maladies which decimate our race, and ravage our towns, belong to the great zymotic class—to fever in all its forms, whether continued, typhoid, or exanthematous—to diarrhœa, to dysentery, and cholera. Now the great majority of these, and many other affections, are, by efficient, sanitary measures, capable either of entire eradication, or of great mitigation; and yet, owing to ignorance, perverseness, and selfishness, "the pestilence that walketh in darkness, and the sickness that destroyeth in the noonday," are still allowed to pursue unchecked their course, carrying desolation and sorrow to the hearths of the poor, and to those who have no constitutional protectors. I have seen in the courts and alleys of this metropolis, an amount of misery and affliction which cannot be surpassed in any part of Europe. I have again and again visited places where all that constitutes the dignity of our common nature is lost amidst the almost inconceivable filth of neglected dwellings, and the promiscuous crowding and herding of both sexes and all ages. Where, we may rightly, nay, righteously, ask, does the responsibility of all this suffering sorrow and deadation rest? Is it with the poor themselves? I ave for years traversed every part and district of is great metropolis; I have entered the dwellings thousands of the industrious classes, and by pernal contact learnt their feelings, as I have lamented eir misery; and truth demands my testimony, that ey are not answerable for these enormous evils. On e contrary, I have found our humbler brethren utely sensibly of the wretchedness to which they ere unwillingly and helplessly subjected; anxious, ay, clamorous for relief; and it must be added, deep impressed with the injustice that thus left them, in e capital of this Christian land, the uncared-for ictims of sordid interests and public neglect.

Much has of late appeared in a quarter, namely, e public press, which, professing to be the guide nd the instructor of public opinion, ought to be acurately informed, indicating that the responsibility r the neglected sanitary state of the metropolis ests with the General Board of Health. Responsiility implies power; of power, however, so far as ondon is concerned, the General Board has none.

It is, indeed, as I have good reason to know, very enerally conceived by the public that because there xists a public Health Act, administered by a public oard of Health, this body has authority in the meropolis; but it nearly concerns the public to know, nd specially at this critical moment, when cholera, n a more destructive form than has ever yet appeared n Europe, is ravaging the north of Germany, and aily advancing westward, that the General Board of Health has at this time in London no more authority o effect a single sanitary amelioration, than any indiidual I have now the honour of addressing. The truth is, and, I repeat, it nearly concerns the public that this truth should be known far and wide, the metropolis, with the district for some miles around it, is expressly excepted by the Act of Parliament from the application of the powers entrusted to the General Board of Health; the country is included, London is excepted. When, owing to the opposition of the parochial and other authorities, this exception was made, it was the intention of the framers of the Public Health Act to deal with the metropolis by separate acts—by an improved Water Act, by an improved Sewer Act, &c.; but how far these intentions have been realized, is answered by the existing state of the metropolis, which is at the present moment not much better calculated to meet an attack of cholera than it was in 1848; whilst many provincial towns have the means of improving their sanitary condition, and are at this very time actively in process of so doing.

As an instance of the utter insufficiency of the present powers, I will briefly give the history of a house in Grosvenor-market, Oxford-street, which I visited yesterday, and which may serve as a sample of a whole class. This house, according to the statement of the parochial surgeon, has been always the seat of severe epidemic disease, a focus for the neighbourhood, having been attacked by cholera in 1832, most severely by choleraic diarrhœa in 1849, and by fever in all its forms again and again. The cellars under this house have been converted into a receptacle for cattle and sheep; and under the next dwelling is the slaughter-house where they are killed. It is also immensely overcrowded, containing from eighty to ninety persons—the population of a small village.

A short time since, an unvaccinated child was attacked with small-pox; and being allowed to remain, three other children were in succession infected by this loathsome but preventible disease, causing great alarm in the neighbourhood. Now as to the remedies for these glaring evils; the poor people in the vicinity have applied to the official quarter for relief, but none that is effective can be given. It appears that the house in question can be brought under the provisions of the Common Lodging Houses Act; but this measure, marred as it was in its passage through Parliament, is quite incompetent to deal with cases of this kind. As originally introduced by the Earl of Shaftesbury, power was given, upon medical evidence of its necessity, to remove to the proper hospital any person attacked by contagious disease; but this clause was struck out, and so there was no authority in this case to remove the child first attacked, in order that the other inmates might be protected. Again, the focus of all the evil is the underground slaughter-house; but over that the police have no control; and so the mischief will continue, epidemic disease prevail, and sickness, sorrow, and death follow in its train.

The General Board of Health has done all that lay within its power to improve the sanitary state of London; it has, by full, detailed, and repeated reports, brought before the notice of Parliament and the public the neglected and dangerous state of the poorer districts of the metropolis; it has demonstrated by a large mass of evidence, that owing to this state, epidemic and destructive diseases are engendered and diffused; and it has pointed out the remedies for all these accumulated evils: that these remedies have not been applied, rests neither with the Board nor with its officers.

But to return from this digression, into which I have been led, partly by a desire to set forth the truth in a matter of considerable moment, and partly by the wish to awaken the public to its true interests, I I would urge upon the student to investigate, as an essential part of his professional education, the great subject of the public health; under the assured conviction that he will thereby be enabled in subsequent years by the prevention of disease, to render services to the community in no degree inferior to those connected with the more recognised duties of his profession.

Entertaining these views, and knowing that hitherto no special instruction has been given in this country on hygiene, it is my intention, at the close of the present session, to give a short gratuitous course on this subject; and it is to me a matter of much gratification that the authorities of St. Thomas's Hospital, convinced of the importance of the question, have sanctioned the delivery of these lectures within the walls of this great institution.

Mr. Grainger, having advocated the claims of the Medical Benevolent College, both on the profession and the public, concluded by announcing that some of the most distinguished teachers in the metropolis, impressed with the responsibilities of their office, had resolved to form a society for promoting the spiritual welfare of their students and which would also further serve to correct the erroneous opinion, that because some few men of talent and attainments had in other years fallen into the sin of scepticism, such pernicious doctrines were prevalent in that glorious profession to which those he had the honour of addressing belonged.

The *conversaziones* at St. Thomas's Hospital appear to be increasingly attractive. On Friday, the 1st of October, the large and handsome hall was crowded with listeners to Mr. Grainger's eloquent address, many of whom were obliged to be content with standing room. The whole medical staff of St. Thomas's were present, with the exception of Mr. South and Dr. Gregory. The address was listened to with profound attention, and embraced a variety of subjects. If the lecturer digressed a little from the usual introductory themes, to explain the constitution and powers of the Board of Health, he made ample amends by abstaining from the fulsome compliments which on former occasions had been paid, *usque ad nauseam*, to the treasurer, professors, medical officers, students, arrangements, and every thing else connected with St. Thomas's Hospital in its present appointments, as well as in its palmy by-gone days. Nor can we quarrel with him for his pathetic appeal in behalf of the Medical Benevolent College, which was introduced as a beautiful episode at the close, and which was handsomely responded to by the Treasurer, Richard Baggalay, Esq., who promptly presented to Mr. Grainger a donation of £20 for the College Fund. This incident reminds us of the interesting historic fact connected with the building of St. Thomas's Hospital. The celebrated martyr, Bishop Ridley, had been preaching before Edward VI., and earnestly urging upon the governors of the land to make public provision for the care of the sick poor, the instruction of youth, and the reformation of criminals. As soon as the service was over, the young monarch sent for the bishop, and told him he wished to profit by his discourse, and shortly afterwards the foundation stone of St. Thomas's Hospital was laid; and to the same exhortation we are said to be indebted for St. Bartholomew's Hospital, Christ's Hospital, and Bridewell. Mr. Grainger has our thanks.

UNIVERSITY COLLEGE HOSPITAL.

DR. JENNER'S ADDRESS.

Dr. Jenner stated that his intention in his present address was, generally and briefly to consider the members of the profession of medicine in their mental and moral aspects, and to advert to their duties and their rewards. For the purpose of thus considering them, he arranged them into three classes—practitioners, teachers, and cultivators of medicine. A quick perception of the aggregate of the phenomena before him, and a rapid appreciation of their combined therapeutic indications, were, he remarked, the great essentials for a good practitioner. He then divided practitioners of medicine into two orders—viz., scientific physicians and those especially known as "practical men;" and he endeavoured to show in what the difference between the two essentially consisted. The physician's inability to give a full and satisfactory exposition of the foundation of his correct judgment in regard of diagnosis, prognosis, or treatment, arose, he thought, from—

1st. An inability to appreciate mentally the individual elements which make up, or to analyse certain complex phenomena present in a given case, or in what is called a single symptom.

2ndly. An inability to find words to describe correctly and definitely the separate elements of those complex phenomena.

3rdly. An inability to follow the mental process by which the passage from premises to conclusion is effected.

4thly. An inability to find words to describe that mental process. The great moral characteristics of the practitioner of medicine he held to be courage and charity. The duties of the teacher were, he stated, twofold —to inform the student as to the present state of the science, and to instruct him how to acquire knowledge for himself. With regard to the cultivators of medicine, Dr. Jenner observed, that the therapeutist ought to be a pathologist, the pathologist an anatomist and physiologist; but that independent observation was the sole foundation of our pathological and therapeutical knowledge. He then formularised the mode in which a large number of the questions that come before the cultivator of medicine are to be solved. In conclusion, Dr. Jenner urged on his hearers the advantages to be gained by seeking knowledge for its own sake, and not for the purpose of attaining by its aid any ulterior objects.

WESTMINSTER HOSPITAL.

DR. BASHAM'S INTRODUCTORY ADDRESS.

The Introductory Lecture was delivered by Dr. Basham, in the presence of a numerous auditory of governors and students. He first alluded to the special character of these addresses; to the learned research characteristic of many; to the attempts of others to trace out the origin or earliest records of medicine. He thought it, however, a more interesting task to identify the circumstances, or to mark the individuals that had promoted the development of particular branches, and hastened forward their application in a wider sphere to the wants and uses of man. A retrospective view of the progress of medical art could not fail to impress upon us the conviction, that the successive periods of its progress were stamped prominently with the philosophical speculations of different generations; and that the views of individual minds, the course or special direction of scientific inquiry, had, from generation to generation, shed sometimes a baneful, at others a fostering influence over the development of medicine. The chemical sect of physicians of the 15th, the iatro-mathematical sects and the metaphysical sects of the 16th and 17th centuries, severally arose at periods that were marked by the special attention of the learned either to chemistry, mathematics, or metaphysics, and forcibly illustrated this view. They originated theories and systems of medicine equally untenable and erroneous. The commencement of the present century had witnessed the decay, and the present generation, he hoped, would record the final abandonment of all theoretical systems of medicine. This wholesome revolution had been brought about by a more special attention to anatomy and physiology, and the impulse to these pursuits had, in this country, emanated from Dr. William Hunter and his immortal brother. Speculative systems and specious theories of medicine were now consigned to those boastful pretenders who practised the arts of quackery, and the one that now most notoriously prevailed assumed the name of the homœopathic system. The doctrines taught by the followers of Hahnemann were fair samples of the follies committed by those who forsook the path of inductive research. The disciples of this system disregarded the facts of anatomy and physiology, they equally rejected the evidence of pathological inquiry, they ignored all that organic chemistry had accomplished for medicine; in fine, they refused all evidence but what appeared to favour the absurd dogma of their founder. Having observed that anatomy was the basis and only secure foundation of medical science, the lecturer quoted a passage from Dr. William Hunter, who had emphatically said, that if our senses were more acute, the more we should know of our fabric, and consequently become the better able to understand and treat disease. He thought that Dr. William Hunter had written in the spirit of prophecy, for the aid our senses had received by the improvement of the microscope had originated a new branch of anatomical study. Microscopical anatomy or histology had already interpreted much which was formerly veiled in obscurity, and the microscope had become as necessary an instrument to the anatomist and pathologist as his scalpel. He believed that the progress of medical science was advancing with the spirit of the age, and that this progress was largely aided by the application of the collateral sciences as auxiliary to researches in physiology and pathology. He was desirous of adducing some proofs of this. He first referred to several discoveries in physical science, which had thrown light on some physiological processes. He alluded more particularly to Dutrochet's researches into the laws of endosmosis and exosmosis, and the application of these by Poiseuille, Vogel, and others, to the interpretation of the phenomena of absorption. The gifts of organic chemistry to medical science were next mentioned. The aim of all chemico-physiological and pathological investigations was avowedly to gain an insight into the chemical phenomena accompanying the vital processes; and it was to chemistry we must look for the elucidation of the nature of disease; for was there a single disease not accompanied by chemical change? In alluding briefly to these gifts of chemistry, he could not omit the discovery of ozone by Professor Schönbein; the experiments of this distinguished chemist brought this substance into a most important relation to miasmatic emanations and putrefying effluvia generally. While chemistry thus lent a prompt aid to the progress of medical science, the microscope held a scarcely inferior place as an auxiliary to chemico-pathological inquiry. It was to the microscope, and to the labours and successful researches of Dr. Quain, that we were indebted for the earliest hints and true explanation of a peculiar transformation of the tissues, known as fatty degeneration, which was likely to constitute a marked epoch in pathological inquiry. Such were the characteristic pursuits and scientific tendencies of this generation, and he believed and firmly hoped that these were calculated to influence permanently and beneficially the progress of medical art.

The lecturer, in conclusion, earnestly exhorted the students to industry and devotion to their studies. He pointed out the contrast between the remarkable requirements expected from a student now and formerly; he expressed his satisfaction at the more searching and more elevated character of the examinations as tests of qualification, and thought the public benefitted, while the profession was improved, by this circumspection in admitting to practice ignorant or unskilful persons.

It was announced to the students, that as the new buildings, the anatomical room and the chemical laboratory, which it was hoped would have been ready by that day, were not quite finished, the dissections would, for a week or two, go on in the old dissecting-room, and that the lectures would be delivered, at the hours indicated in the prospectus, in the theatre of the hospital.

SCHOOL ADJOINING ST. GEORGE'S HOSPITAL.

A numerous gathering of students and old friends in the theatre of this institution, testified to the esteem in which it is held by the rising generation of the profession, and the affection entertained towards it by those who have in past years acquired there the knowledge which was to serve them in practice. Nowhere is it possible to witness a more pleasing manifestation of those feelings which prompt men engaged in the active duties of life, to return once a year to renew the associations formed in the days of studentship—to enjoy again the society of their old teachers—to meet former companions at the dissecting-table—and to hear those sentiments repeated by the lecturer of the day with which it is customary to inaugurate the commencement of a new session, and to prepare the new student to enter with a proper spirit upon the search into the arcana of the profession he has chosen. Upon this occasion, the introductory address was given by Dr. J. Bampfylde Daniell. He was much applauded at several passages, but we observed that nothing appeared to give more genuine satisfaction to his hearers, than his emphatic assurance that there was no intention whatever to remove the school from the spot where it had so long flourished.

HUNTERIAN SCHOOL OF MEDICINE.

INTRODUCTORY LECTURE BY DR. ALDIS.

The Introductory Lecture at this School, which had been announced to be given by Mr. Chippendale, was delivered by Dr. Aldis. The lecturer adverted to the humiliating position the profession of medicine held in public esteem. He observed that all its importance was attributed to the emolument derivable from pursuing it, but none to the good which a medical practitioner can render to his fellow-man. He warned his hearers against the homœopathic and mesmeric frauds. He reminded the student how necessary it was to acquire sound principles, beginning with a solid foundation. The Lancet had lately said "that a sound education might be obtained at any of the medical schools." The physician might be hurried from his bed to act promptly in every emergency; so likewise the surgeon might be suddenly called to secure bleeding vessels, or to operate upon strangulated hernia. The lecturer, after speaking of the physical advantages which a medical man might render to his fellow-creatures, observed that he might also, if properly disposed, benefit them religiously and morally. After a reference to sanitary measures, he referred to the Medical Benevolent College; and, in conclusion, hoped his hearers would become successful practitioners, and exhorted them to keep in view the honour of their profession and the public good.

Miscellaneous Correspondence.

FIBRINOUS CONCRETIONS OF THE HEART.

[NOTE FROM DR. OGLE.]

To the Editor of The Lancet.

Sir,—It is in no captious spirit, but simply from interest in the subject, that I venture to make one or two inquiries and observations concerning a case of supposed death from fibrinous concretions in the heart, communicated in The Lancet.* The interest arises chiefly from the attention which has of late been more especially directed to the fluid blood and its various elements, as opposed to the solid structures, in questions of pathology. Regarding the case in point, I would beg to ask for more particulars as regards the colour, consistency, &c., of the fibrinous clot. It is spoken of as being "white and firm." How firm was it? Was it, for instance, of a leathery consistence? Had it the appearance of having undergone contraction or change of structure? Was it laminated? Moreover, was the blood generally very fluid? and was there any atheromatous state of the general arterial system? How long after death was the examination made? and, lastly, was the heart, examined microscopically, in a fatty condition? I hope I may be not deemed troublesome by these questions.

Having had the opportunity, as Curator to the St. George's Hospital Museum, of examining several hundred dead bodies, I cannot call to mind a single case, either of erysipelas or other disease, in which excess of fibrine has apparently existed in the blood, wherein it was presumable that the "sinking state" was brought on, and eventually death, simply by the mechanical effects of arrested fibrine in the heart's cavities blocking them up, and forming a true fibrinous "concretion." Very frequently, the right heart, owing to diminished pulmonary circulation, and consequent obstruction, has contained large masses of a fibrino-albuminous character, branching out into the pulmonary arteries; but they have only been very moderately firm, and only slightly adherent to the heart's cavities, by detention among the interlacing muscular ridges. Those which have been more intimately adherent, have been very small, chiefly in the auricles only, and by no means sufficient to cause gradual death by obstructing the blood's passage. I am not certain that, in the act of death, these larger masses may not, when accumulation takes place, hasten death, and give, as it were, a final stroke; but that is, I presume, a very different thing from their gradually forming, and so causing the "sinking state," extending over some period of time,—in which sense I think the contributor of the case looks upon them. I would rather look for the cause of death in the general state of the body caused by the poison of the erysipelas, which, like that of fever or "hectic," leaves no visible manifestation; or perhaps to a fatty condition of the heart.

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* October No., p. 277.

Again: I believe that a certain general condition of the body often exists, apart from erysipelas and other obvious diseases, in which there is a pre-eminent tendency to the sinking state, and which, owing either to super-fibrination of the blood, or to a peculiar condition of the capillaries generally, (the fibrine of the blood remaining natural in quantity,) fibrine is deposited in various parts of the body, and plays an active part in producing grave results. This state, which appears to be oftentimes but a temporary one, often a permanent one, might receive the dignified name of the "fibrinous diathesis," in the same way that we speak of a "malignant or a scrofulous diathesis."

Finally, I would suggest that, under the supposition that the gradual "sinking state" arose from the fibrine accumulating and slowly obliterating the heart's cavities, we might with almost a certainty have expected a history of severe cerebral or pulmonary distress and urgent symptoms, whereas there is special mention of the quietness and ease which attended the patient's last moments.

I beg to remain, yours &c.,
J. W. Ogle, M.B.

FIBRINOUS CONCRETIONS.

[Letter from Dr. Garstang.]

To the Editor of The Lancet.

Sir,—You will perhaps allow me to make a few remarks on the letter written by Dr. Ogle, and published in The Lancet. In answer to his first inquiry, as to the colour and consistence of the fibrinous concretion to which I referred on a former occasion, I would say, that it was of a dirty white, or rather, perhaps, of a cream colour, and that in consistence it resembled (as near as I can describe,) the white part of an egg that has been boiled. To apply the term "leathery consistence" to the concretion would be an exaggeration, but it was very firm, and, as I said before, it had an attachment to the cardiac walls. I could not say that the concretion had undergone contraction. It was modelled to the shape of the cavities in which it lay, and did not quite fill them. Dr. Ogle asks if the concretion was "laminated." If by this he means, did it exhibit, on section, distinct layers (like those of an onion?) I answer no; neither was it organized, or otherwise changed in structure; it was simply a firm, tough mass of fibrine, stringy or fibrous in appearance, when torn across.

The blood was fluid. The arterial system was not examined minutely, but with sufficient care to show that no deposit or other form of obstruction existed at the roots, or in the first parts of the great vessels. I regret that the heart was not examined microscopically; but I may observe that it did not exhibit those appearances of flaccidity and of softness of structure which are, I think, always met with in cases where death has resulted from mere failure of the muscular power of the central circulating organ. The inspection was made seven hours after death.

And now, having answered Dr. Ogle's inquiries so far, I may perhaps be permitted to ask him, whether, from the "hundreds" of inspections which he has kept particular notes on the subject of "Fibrinous Concretions" in the heart. I strongly suspect that he has not, and that he speaks from *memory* merely, not from the *litera scripta*. If such be the case, I can only say that his conclusions are worthless. Like Dr. Ogle, I have seen very many inspections, (having had somewhat favourable opportunitis of doing so,) and have also often seen concretions of fibrine removed from the heart; and, dare I judge from memory merely, I am sure that I should arrive at conclusions on this matter quite contrary to his.

But the fact is, that until just lately, I (like the generality of my medical brethren, I believe) have attached no importance to to these concretions, and therefore I cannot speak of the cases in which I have seen them with any degree of correctness. At the same time I know that observers who do take particular notice of such formations, hold opinions quite contrary to those held by Dr. Ogle. Grisolle cases of pneumonia afford, I think, striking evidence on this point.

As Dr. Ogle supposes, *I do believe* that in some cases, the "sinking state" may arise from the mere formation of a fibrinous concretion in the heart; although I am also quite willing to admit, that in other cases such concretions may only affect life secondarily—acting, i. e., as the "final stroke"—an opinion which never has been, and never can be, doubted by those who will admit that concretions of the kind in question form in the heart during life. I cannot for one moment entertain the idea that in the case which I have related, the adhesive state arose from the presence of erysipelas poison in the blood. The erysipelatous inflammation had, as I remarked before, passed quite away, a month previous to the death of the patient, and during this time the tongue was clean, and the secretions were natural—conditions which surely could not co-exist with erysipelas in the blood. I do not believe either, for reasons already given, that fatty degeneration of the heart was the cause of death. Borrowing the theory of a "fibrinous diathesis," I can also say, that if Dr. Ogle can establish such a theory on facts, his labour will prove of great service to the profession.

The absence of pulmonary and cerebral symptoms in the case which I related is less strange in particular than it is in a general point of view. It may seem curious, I admit, that the heart should be choked with a clot of fibrine, and death result without the occurrence of signs indicative of pulmonary or cerebral derangement. But equally hard is it to suppose the same symptoms absent in cases where death should result from fatty degeneration of the heart, or from erysipelas poison.

I could, moreover, refer to instances in which formations other than fibrine have existed in the heart during life, and have given rise to death; pulmonary and cerebral disturbance being (as in my case) absent.

In conclusion, I have pleasure in saying, that I greatly admire the courteous manner in which Dr. Ogle's letter is written, and that I trust he will receive this reply with all friendly kindness.

Yours very truly,
W. GARSTANG, M.D., &c. &c.

DR. M'CORMACK'S CASE OF RUPTURED JEJUNUM.

To the Editor of THE LANCET.

SIR,—THE LANCET* contains the account of an interesting case of ruptured bowel from accident, related by Dr. M'Cormack, of Shirley, and suggests, I think, a question of some importance with reference to treatment. The great and unexpected improvement, and favourable progress of the case from the afternoon of the day on which the accident happenod till half-past twelve on the following day, when vomiting and peritonitis suddenly set in, make one desirous to learn the cause of these symptoms, which immediately changed the aspect of the case, and ushered in a rapidly fatal termination. The accident happened at one o'clock in the day. The patient "had *not* dined." The digestion of breakfast would be over, and the food have arrived below the seat of injury, about the middle of the jejunum. Reaction and the process of reparation being established, there appears to have been nothing to interfere with the favourable progress of the latter, until after the patient had "eaten his breakfast" on the following morning, which, the report says, he did "with relish." After the accident, and till breakfast time next morning, I infer that he took nothing except perhaps a little liquid occasionally, which would be absorbed ere it reached the jejunum. But the "breakfast" seems to have done the mischief. Taken probably about nine o'clock, the food, in process of digestion, would arrive at the ruptured part of the bowel about the time when vomiting and peritonitis suddenly appeared, and by escaping into the peritonæum would of course excite them. Now, with such a rapid and admirable effort at reparation as that which nature evidently made in this case, (disclosed by the post-mortem examination,) what might have been the effect of excluding food entirely from the stomach, and administering nourishment, in the shape of milk and beef-tea, by the rectum only, for a few days? Is it too much to imagine that the patient might have recovered under these circumstances?—I remain, sir, your obedient servant,

W. U. WHITNEY.

DR. M'CORMACK'S CASE OF RUPTURED JEJUNUM.

To the Editor of THE LANCET.

SIR,—I was much pleased with the very judicious and sensible remarks of your correspondent, W. U. Whitney, Esq., on the case of Ruptured Bowel, reported by me some time before. I fully agree with him that the breakfast seems to have done the mischief, and that the only chance we have in these cases is to keep the stomach free from solid food; and such was my direction to the nurse in attendance—that he was to have nothing but fluids, and that in very small quantities, until I saw him again; but it appears the unfortunate man felt himself so much better the next morning, (in fact, as he expressed himself, "that there was nothing the matter with him,") that he disregarded my injunctions, and partook of not by any means a hearty breakfast; hence I have no doubt the fatal termination, if not actually produced, was at all events hastened. I consider it only justice to myself to state these particulars, as otherwise the remarks made by your correspondent might lead persons to imagine there had been some mismanagement in the case. I remain yours obediently,

M. J. M'CORMACK, M.B., M.R.C.S.L.

EPIDEMIC CARBUNCULAR DISEASE.

To the Editor of THE LANCET.

SIR,—Mr. Hunt would perhaps like to know that in 1845–46, an epidemic of carbunculous boils prevailed in the village of Denham, near Uxbridge, a place where typhus fever used to be epidemic. The poor were the sufferers. The sympioms, local and general, were severe, the latter being a modified sort of typhus. It gave me great uneasiness, as it semed to want but a little more severity in the general symptoms to make the attack a sort of "plague."

Treatment.—Mineral acids and quinine; mercury-with-chalk, and rhubarb, as an alterative; yeast to the carbuncles as a poultice. There were no cases of death.

The carbunculous boils were also common in parts of Wiltshire, in 1848–49, but not so severe; also among the poor. I have seen no fatal cases.

Latterly I have seen but few such cases, having but little to do with the poorer classes. I have noticed, however, a great increase of scrofulous abscesses of late, some of great extent and of very slow progress.

I am Sir, your obedient servant,
GEORGE S. GREGORY.

⁂ Instead of sending this note to Mr. Hunt, we have placed it in our columns, as it contains information which may be useful and interesting to the profession generally.—ED. LANCET.

WHO INVENTED URETHROTOMY ON A GROOVED STAFF AS A CURE FOR STRICTURE?

To the Editor of THE LANCET.

SIR,—In a lecture by Mr Coulson, published in THE LANCET, the credit of the operation of cutting stricture on a grooved staff is given to the old French surgeons, and a statement to the same effect had previously appeared in your columns. Mr. Syme claims this invention, and his friends are indignant with those who dispute the claim.

Now, there can be no doubt, judging from the passages quoted from Desault or Bichat, that one or more of the older French surgons performed *boutonnière* on a grooved sound, for the relief of retention of urine, *caused by stricture;* and it can hardly be doubted that when this operation was performed, it was performed not only for the purpose of relieving the existing retention, but in order to prevent future retentions—in other words, to remove the stricture causing retention. The older French surgeons were not idiots: had the relief of the existing retention been their only object, they would have passed a catheter, instead of a grooved staff. The only difference between their proceeding and Mr. Syme's, is this, that Mr. Syme does not wait for complete retention, but endeavours to *obviate* this and other dangers by the operation in question.

That Desault should condemn the proceeding (although this, as Mr. Syme's advocates must know, has nothing to do with the point at issue,) is not wonderful. He only does that which is done by many surgeons at the present day—who think that when an instrument of any kind can be passed into the bladder the stricture ought to be removed or relieved by other and safer means already in our possession.

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* *Vide* September No., page 182.

If this revived operation be justifiable in less dangerous circumstances, Mr. Syme deserves credit for extending it to cases of stricture unconnected with retention. But in awarding credit under the condition mentioned, it would be unfair to the memory of Sir Charles Bell to neglect the share he had in this extension. Bell considered that he recommended a great improvement in recommending incision of the urethra in circumstances very similar to those which, in Mr. Syme's opinion, justify *his* operation. Bell, like Syme, did not wait for complete retention; and this he made the great distinction between his (Bell's) operation, and the operation of urethrotomy performed by Sir Astley Cooper, and erroneously supposed by him (Cooper) to be an original invention of his own. It is a curious fact, that Bell's operation bore the same relation to Cooper's, that Syme's bears to the operation described by Desault.

I shall conclude these remarks by hazarding the opinion, that it is no proof (as some seem to suppose) of the badness of Mr. Syme's operation, that it is occasionally the cause of death; for what operation is not occasionally fatal? I believe, moreover, that the operation itself is capable of improvement; and that the cases in which it may become a question whether or not it should be performed, will become of very rare occurrence by improvement in other remedial means, or by the more general usé of the best measures at present employed. I am, Sir,

Your obedient servant,
Chirurgus.

CAMPHOR AN ANTIDOTE FOR THE POISON OF STRYCHNINE.

By I. Pidduck, M.D.

In Mr. Cooper Forster's paper, on Poisoning by Strychnine,[*] he states that "no antidote is known." The following case will help to supply the deficiency of our knowledge in this respect:—

J. W——, pianoforte-maker, a weakly man, of intemperate habits, accustomed to work in a hot workshop, and to exposure to cold on his way to and from work, was the subject of severe attacks of rheumatic gout. After one of these gouty rheumatic attacks he was suffering under dyspepsia, neuralgic pains, and general debility. For the relief of these symptoms strychnia was prescribed, in the dose of a *sixteenth* of a grain three times a day. By mistake at the chemist's, (one of the first in London,) the grain of strychnia, with sugar, was divided into *six* instead of sixteen powders.

The first dose taken in the evening produced severe twitchings of the muscles; but the second dose, early in the morning, threw him into violent convulsions. The messenger who came for me said he was dying. Immediately on discovering the mistake, and witnessing one of the frightful paroxysms, I prescribed twenty grains of camphor in six ounces of almond mixture, one-fourth to be taken every two hours. The first dose so completely quieted the convulsions that there was no need of a second.

Cases of this kind rarely occur, and I have only this one to adduce, but the incompatibility of strychnia and camphor proves, *pro tanto*, that the one is the antidote to the other. As a general rule, to which there probably may be many exceptions, the poison and the antidote severally are to be found in the three kingdoms of nature.

TREATMENT OF UNUNITED FRACTURE.

To the Editor of The Lancet.

Sir,—In a late number of The Lancet you conclude your article on ununited fracture by quoting a case treated by Dr. Mott of Philadelphia,[*] by passing a silver wire through the ends of the bones after the points had been sawn off. A case of precisely a similar kind was published in a previous number of The Lancet in 1850, and would have been an useful addition to your catalogue of cases, and strongly corroborative of the success of that mode of treating ununited fractures.

I think it may be questioned whether, in any cases, except where there is some constitutional taint, any kind of treatment is likely to produce union which has not a tendency to destroy or remove intervening substances or abnormal attachments. Excision of the ends of the bones can scarcely fail of the latter effect. Absorption of any intervening substances will necessarily be promoted by any force sufficient, acting directly upon it, whether it be vertical pressure, as caused by Mr. Amesbury's apparatus, or lateral pressure, as effected by tight bandaging, or Dieffenbach's plan of the ivory pegs. The seton has the same tendency by inducing free suppuration, and would be likely to succeed should it penetrate or pass sufficiently near the substance. Chloride of zinc, as well as other kinds of highly destructive chemical agents, the successes of which are known to the profession, possesses this common power in a marked degree.

As the above are many, if not most, of the means which have been found to succeed in such unfortunate cases, I beg to suggest to the profession for their consideration, the propriety of keeping in view that principle of treatment whenever such cases may present themselves. I should have said principles—viz., of removing intervening substances or abnormal attachments, if not both at the same time.

I am, Sir, your obedient servant,
John Russell.

MOPPING OUT THE AIR-PASSAGES.

To the Editor of The Lancet.

Sir,—In The Lancet[†] is contained a paper, by Horace Green, M.D., in which appears the following paragraph:—

"Professor Peaslee thus remarks: 'This case finally settles the question—if any body still has any doubt—of the possibility of passing a sponge through the rima into the trachea in the treatment of tracheal disease. The sponges used by Dr. Horace Green for that purpose are about half an inch (generally less) in diameter. The one I actually removed was *more than fourteen times as large* as one of these; and the whole mass at first was at least *fifteen or sixteen* times as large."

Can any of your readers inform me whether any unintentional error is contained in these figures, or whether it is seriously meant, that a foreign body, eight inches in diameter, found its own way into the human trachea? I am, Sir,

Your obedient servant, **T. P. Beavan.**

GONORRHŒA TREATED BY CHLOROFORM INJECTIONS.

To the Editor of The Lancet.

Sir,—In your valuable publication,[‡] I find that there are several cases respecting the cure of gonorrhœa by the injection of chloroform and mucilage.

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[*] September No., page 196.

[*] October No., p. 283.

[†] *Ante* page.

[‡] Mr. Behrend's paper, Sept. No., p. 196.

Having tried it in six or seven cases, the parties complain of severe pain for nine or twelve hours afterwards, and also after micturition there is a quantity of blood passed; also great difficulty in voiding the urine, which has, in one case, necessitated the use of the catheter. Not seeing these facts stated, I beg the favour of the insertion of these few lines.

I am yours, &c.,
EDWARD HALL, Surgeon.

LIBEL.

LIZARS *versus* SYME.

THIS trial, which excited considerable interest in Scotland, took place before the Lord President and jury on the 26th ult. The present action was brought for an alleged libel published by Mr. Syme in the *Edinburgh Monthly Journal* for August, 1851. It appeared in evidence that a letter had previously been published in the *London Medical Gazette* from the pen of Mr. Syme; but in that periodical the passages said to be libellous had been omitted by the editor, Dr. Alfred Taylor. The following is the letter which appeared in the *Medical Gazette*:—

"SIR,—I have only to-day happened to see your Journal of May 16th, which contains some statements that certainly should not have remained so long unnoticed if they had been known to me sooner. You say, 'A fierce paper war has arisen between the two Edinburgh Professors, Syme and Lizars,' but must, or at least ought to know, that I have not addressed a single word upon the subject in question to the so-called 'Professor.' Within the last eight months, I have performed this operation nine times in the Royal Infirmary of Edinburgh, in the presence of the largest class of surgical clinical students in Her Majesty's dominions. These gentlemen can testify, that in no instance has there been bleeding, extravasation of urine, or any other unpleasant consequence, and that all the patients speedily and completely obtained the relief which they desired. As you say that 'something more than the guarantee of Mr. Syme's reputation is wanting to assure the surgeon, that he would be justified in having recourse to the proposed operation,' I beg to inquire if you think the evidence thus afforded sufficient, and if not, what further proof you deem requisite to establish the safety and efficiency of my operation.

"I am, Sir, your obedient, servant,
"Edinburgh. June 26, 1851." "JAMES SYME.

The passages within inverted commas are from a review of Mr. Lizars' work on Stricture, published in the *Medical Gazette*. Subsequently, the letter of Mr. Syme, in full, was published in the *Monthly Journal;* the passages omitted from the *Gazette* being as follow. The alleged libel in italics:—

"*Regarding him as long placed beyond the pale of professional respect and courtesy;*" and, "In estimating the value of my operation, you proceed upon the supposition, that the allegations of Mr. Lizars and his assistant, Dr. Muller, are well founded; but in fairness to your readers, if not to myself, should have mentioned, that the statements of these persons, in so far as they attribute bad effects to the operations which I have performed, for the remedy of stricture by division, have been declared by me to be all utterly devoid of truth." The following remarks preceded the letter, as inserted in the *Monthly Journal*:—"The *London Medical Gazette*.—One of the conductors of this Journal (*Monthly*) lately felt it necessary to address a letter of remonstrance to the Editor of the *London Medical Gazette*, who published it in an imperfect form, under the pretext that the matter excluded would have been subject to the English law of libel. Two results have followed: in the first place, the letter is rendered meaningless; and, secondly, the author is made to appear to have used libellous language. In order that our readers may judge how far this conduct was warranted, we now place before them the letter in its original form—the omitted portion being enclosed within brackets."

It was contended by the counsel for the plaintiff, that these passages contained libellous matter, and calculated to be injurious to the professional reputation of Mr. Lizars. In support of this view, Dr. A. Taylor and Mr. Kesteven, of London, were called, as was also Dr. Renton, of Dalkeith, Mr. Sanderson, of Musselburgh, Dr. Sibbald and Professor Miller, of Edinburgh, and Mr. Highley, jun., of Fleet-street, London, bookseller. These several gentlemen deposed, that they considered the passages referred to, to be highly calculated to injure the reputation of Mr. Lizars. The counsel for the defendant contended that the statement that Mr. Lizars was "long placed beyond the pale of professional respect and courtesy," merely referred to the position which Mr. Syme had felt himself compelled to take regarding him, and had by no means a general bearing. This position Mr. Syme had assumed in consequence of certain writings of the plaintiff, and certain circumstances which had occurred previously to the publication of the alleged libel. To support this view of the case, several witnesses were called; and amongst others, Drs. Cristison and Simpson, Dr. Scott, of Dumfries; Dr. Johnston, of Berwick; Dr. Coombe, Dr. Robertson, &c. These gentlemen all gave it as their opinion that, taking the entire meaning and scope of the letter, it was evident that Mr. Syme had limited his meaning to his own position in respect to Mr. Lizars. The counsel for the defendant argued that the words had a general meaning. The jury, however, in about a quarter of an hour, decided that the intention of Mr. Syme was not to injure the character or professional standing of Mr. Lizars. This was in effect a verdict for the defendant.

IMPORTANT DECISION.

COLCHESTER COUNTY COURT, AUGUST 13.

(Before W. GURDON, Esq., Judge.)

CHARLES EDWARD BLAIR *v.* JOSEPH FROST.

IN this case, the plaintiff (who was represented by Mr. ABELL) sought to recover £3 for a surgical operation upon defendant's wife.

In reply to his Honour, Mr. GOODY said the defence to the action was, that Mr. Blair, as Surgeon to a Benefit Society held at the Whalebone public-house, on East-hill, (of which the defendant and his wife were both members,) was bound to have performed the operation free of charge, having undertaken to attend the members of the club, in all cases of sickness or accident, (with the exception of a broken limb,) for a quarterly payment of 1*s*. 3*d*. each. The operation was a very dangerous one, it being resorted to for strangulated hernia. Mr. Blair said it would be a case of life or death; and although it was most skilfully performed, and the utmost care used, the poor woman died from the effects of it within a few days. He did not, however, mean to impute the slightest blame to Mr. Blair, who performed the operation with great skill.

At the suggestion of his Honour, Mr. Blair was at once put into the box, and cross-examined by Mr. Goody upon this point. He said he was surgeon to a sick club which was held at the Whalebone public-house, and consisted of about twenty male and female members. Before this operation, the defendant's wife had regularly paid her quarterly subscription for medical attendance. He (plaintiff) undertook to attend the members of the club in all cases of sickness or accident, with one exception—that of a broken bone—in which case he was to have an extra fee of a guinea.

By Mr. Abell.—He did not consider this case as either a case of sickness or accident, and consequently did not come within the rule of the society. Before performing the operation, he saw defendant, and explained to him the nature of his wife's malady, and the extreme importance of doing something for her benefit. He then asked defendant whether he would not prefer having the operation performed, and whether he would like to have a consultation upon his wife's case previous to performing the operation. He replied that he wished every attention to be paid to his wife, and that he was willing to pay any reasonable charge, that might be made. He called in Mr. Churchill to witness the operation. Defendant's wife had been for some time previously suffering from paralysis, for which he had attended her; but that was not likely to produce strangulated hernia.

Mr. Churchill, surgeon, examined by His Honour.—He should say paralysis would be included in the term sickness, but rupture would not be considered as either sickness or accident. The Commissioners of the Poor-law allowed £5 for such an operation as the present, provided the party survived thirty-six hours. No prudent medical man would think of performing such an operation without assistance, if it could be obtained; but supposing a professional man to be in the country, with no other doctor near at hand, it was probable he might undertake it alone, because it was an operation which required to be performed at a certain juncture, and the delay of an hour might prove fatal.

Cross-examined.—It was not at all probable that paralysis could have any effect upon the hernia; he could not remember what Mr. Blair said to him when he called him in, as it was six years since; did not remember whether he said it was a club patient; he (Mr. Churchill) was a medical attendant to a sick club, but he had never seen the rules, nor did he know whether there were any or not.

This being the plaintiff's case, defendant was sworn, and said his wife had been ill with paralysis about six months before this operation, and Mr. Blair attended her as the club surgeon without any charge. She was afterwards taken very ill, and he remembered being sent for by Mr. Blair. He went to that gentleman, accompanied by his brother-in-law, when plaintiff told him that his wife was in great danger, and that the only remedy was an operation, adding that he should not sleep comfortable till he had given his consent to have it performed. He did not give his consent, but his wife made up her mind to undergo the operation. There was nothing said about any charge; and had he known there was to be any made, the operation should not have been performed.

His Honour (to defendant.)—What! not if it was the only chance of saving your wife's life?

Defendant.—No, Sir.

Examination resumed. After the operation, he handed the bill to the club, and the secretary informed him that Mr. Blair had no claim upon him. He did not consider himself at all indebted to the plaintiff.

Cross-examined.—Did not complain to Mr. Blair about the charge, and no notice was taken of the bill.

Mr. Cockerell, late secretary to the club, deposed that during the time he had held office, no charge had been made by Mr. Blair for anything but broken bones.

Cross-examined.—Did not know whether any member of the club had ever before been afflicted with strangulated hernia; nor did he know what was meant by that expression.

Mr. Goody said this was a very important case, not only to the individual who appeared in court to-day, but to hundreds of other poor families in the town; and it would be for his Honour to decide the meaning of the rule that Mr. Blair should attend, provide medicine, and give medical skill in all cases of sickness or accident, except in the case of a broken bone, for 1*s*. 3*d*. per quarter. He (Mr. Goody) therefore thought that, under the contract which Mr. Blair had entered into, he was morally bound to attend this woman, for where there was no exception, the general rule was supposed to include all.

His Honour (interrupting) inquired whether a case of confinement (a species of operation which was performed more frequently than any other) came under the denomination of sickness?

Mr. Blair said it did not; and in such cases an extra fee was always paid.

The Judge said he asked Mr. Churchill if paralysis was sickness, because he wished to get upon the evidence whether strangulated hernia would follow in its train, and so connect it with sickness; but Mr. Churchill's opinion was, that they had no connexion whatever.

Mr. Goody said these rules were framed by very poor people, who did not use very precise language.

The Judge said that, when these clubs were formed, it should be so clearly specified, that the members might understand that in all cases where professional assistance was necessary, the officer should be required to give both medical and surgical attendance, and then the exceptions ought to be distinctly stated.

Mr. Goody said he put the question to Mr. Blair, whether he did not consider himself bound to give his attendance to the members of the club, and he answered as plain as any man could do, that he did.

His Honour said a person might undertake to attend, but he did not undertake to perform an operation. If a member of this club had broken his finger, and Mr. Blair had set it, for that very simple act he would have had an extra fee of a guinea; and was it to be supposed that he was to perform this difficult operation (which was described as the most critical in surgical practice, and for which the Poor-law Commissioners allowed £5) free of any other charge besides the quarterly payments? Were it so, he thought it would be a very hard case. These clubs consisted of the less educated portion of the community, who know no distinction in these matters, but were apt to consider all under the general head of sickness. He then gave judgment for the amount claimed, with the costs of witnesses.—*Essex Standard.*

Foreign Department.

Treatment of Varicocele by Cauterization.

M. Bonnet, the eminent surgeon of Lyons, treats, varicocele in the following manner. The operators when the patient is insensible with chloroform, seizes the cord with the four fingers of each hand, and tries to find the vas deferens; as soon as he feels that duct, he allows it to glide back from the veins, and keeps the latter fixed by his fingers. One hand is then made to rest against the inguinal ring, and the other on the testicle, and an assistant is then desired to apply a peculiar kind of forceps on the veins which lie between the operator's hands. This forceps is supplied with two little rods, which produce the same compression as the hands when the latter are taken off, and likewise keep the vas deferens at the back of the veins. When the forceps is properly fixed, a transverse incision is to be made across the veins, about an inch and a half in length, and the soft parts are divided until the veins come into view, the operator taking care not to wound the latter. It is important that all the bleeding vessels, even the smallest, should be immediately tied: three or four ligatures are generally necessary. The whole wound is then covered with a paste of chloride of zinc, which is allowed to stay for twenty-four hours. The paste is taken off on the next day, and the layer of cauterized parts is removed with the bistoury, their thickness being generally about the one-third of an inch; and the forceps are then also to be loosened, so that the pressure be not exercised too long. A fresh layer of chloride-of-zinc paste is put on the spot whence the eschar has been removed, and is again allowed to remain for twenty-four hours. At the expiration of this time the forceps is removed, and this concludes the operation.

Eight or nine days afterwards, a white eschar, about an inch square, falls off, and this is found to contain the whole of the veins. The latter may easily be known by the dark blood filling the tortuous convolutions. The pain is very severe for the first two or three days, and there is indeed much suffering until the eschar finally falls off. The scrotum and testicles generally become œdematous and inflamed, but the excitement ceases immediately the cauterized parts are detached. The fever and œdema are mostly trifling; no venesection or any other antiphlogistic means are ever required; as soon as the eschar falls off, the patient is as well as if he had not undergone any operation. He generally may leave his bed a fortnight after the cauterization, and the whole treatment does not last more than one month. M. Bonnet prefers this mode of operating to M. Vidal's subcutaneous ligatures and rolling up of the veins. It must however, be confessed that the severe pain is a great draw-back to M. Bonnet's operation.—*Bulletin de Thérapeutique.*

Professional Aphorisms.

The talented editor of *L'Union Médicale*, M. Latour, lately gave a few extremely apposite and amusing professional aphorisms in one of his clever *feuilletons*. We shall just extract a few:—

1. Life is short, the making of a practice difficult, and professional brotherhood deceptive. 2. A man's practice may be compared to a field on which *tact* acts as manure. 3. A medical practice may be likened to a flannel waistcoat—neither can be left one moment without risk. 4. The practitioner who is often absent runs the same danger as a lover, for both may find themselves supplanted on their return. 5. Take great care of your first patients, ye beginners! for these are the seed from which your practice is to spring. 6. When a medical man wants to get rid of a troublesome patient, he need but send in his bill. 7. The practitioner who expects his reward from the gratitude of his patients, may be likened to the countryman who waited, in order to cross the river, until the waters had done flowing. 8. To ask an exorbitant fee always redounds to the disgrace of the profession. A wealthy patient, who was asked an enormous sum by a surgeon, after an operation, answered, "You ought to have said at first, 'Your money or your life.'" 9. When the blind credulity of the public in medical matters is considered, one does not wonder that there are so many quacks and impostors, but, on the contrary, that there are still so many upright medical men. 10. Consultations are either very useful or dangerous, just as the usual medical attendant knows how to manage. It is foolish to have recourse to them too often, but still more foolish to reject them altogether. Don't wait until the friends of the patient ask for a consultation; but don't talk of a consultation, if you think that the issue will be favourable. 11. It is not an easy task to come out of a consultation without being a little lowered in the estimation of the patient and his friends,—the more so as there are physicians or surgeons who, with the utmost urbanity, throw out perfidiously concealed hints, which the practitioner should immediately take up, and boldly insist upon a clear statement. 12. A consultation is very often a sort of note-of-hand, drawn by the usual attendant upon the patient, for the benefit of the physician called in to give his opinion.

At the conclusion of these excellent and well-told aphorisms, (of which we have extracted but a very few,) M. Latour very justly finds fault with the exaggerated delicacy of the Medical Societies of Paris, who reject all those practitioners who put a place to their door. The author likewise discusses the habit of giving instantaneous fees to physicians or surgeons which prevails in England, and advices his fellow-practitioners not to insist upon this mode of payment. He shows that the bulk of the profession are paid, both in this country and in France, in the same manner—viz. at the expiration of a determined period, or at the end of the treatment.

New Inventions
IN AID OF THE
PRACTICE OF MEDICINE AND SURGERY.

Dr. Fitch's *Patent Abdominal Supporter.*

This is an invention, as its name implies, for the purpose of giving external mechanical support to the lower part of the abdomen. It consists of an anterior pad, six inches by two and-a-half, which is connected with two steel springs that pass around and above the crista ilii, and terminate posteriorly in four circular pads, which rest on the base of the sacrum. Two strips are attached to these pads, so that the wearer can either lessen or increase the pressure. Dr. Fitch, who is an American, strongly recommends it should be worn during and after pregnancy, and by females suffering from prolapsus uteri. It is an ingenious instrument, and is constructed upon correct anatomical principles.

Medical Facts, News, Items, &c.

More Poisonous Fungi.—A letter from Montierender (Haute Marne) says:—"The woman who acts as cook to M. de Coucy, a retired officer, brother-in-law to General Oudinot, having last week prepared some mushrooms gathered in a neighbouring wood, served up the dish to her master, and partook of it herself, as well as gave a portion to a woman named Voisins, and the son of the latter, a boy of fourteen. In some hours after, symptoms of poisoning appeared, and though every aid was given, the three adult persons expired next day, the boy alone recovering."

Bristol General Hospital.—Messrs. Wyatts, Blackwell, and other architects and engineers, have sent in very elaborate plans for the new hospital at Bristol.

Obituary.—Died suddenly, at the seat of his father-in-law, Core Hall, Yarmouth, Dr. A. J. Impey. At Omeath, Dr. McCan, of Dundalk. At Ballycastle, Dr. H. M. Smith. At New York, Dr. A. Fitzgerald, of Drughmore, Cork. At Dugshia, India, Dr. John Shaw Wells, H. M. 75th Regt., second son of the late James Wells, Esq., M.D.

The Cholera.—Letters from Prussia, dated Sept. 20, 1852, state that the cholera is on the decrease, the mortality is not so great, and the number of cases has diminished. The whole of Poland, has, however, materially suffered. Three cholera hospitals were opened at Berlin, and at Posen there have been 2494 cases, and 1235 deaths, from the 20th of July to the 20th of September. All the schools were closed, and two members of the legislature have fallen victims to the epidemic.—Intelligence has been received from Berlin, dated Sept. 24th, and it appears that the progress of cholera is stayed by the mild weather which set in; the alarm is therefore greatly dimished. An official report has likewise contributed in tranquillizing the minds of the population, as it is stated in that document, that the disease did not spread into the Brandeburgh province. Only three cases were reported on the 23d of September, and the news from Poland and Eastern Prussia was more satisfactory. The favourable intelligence was, however, followed by less favourable news, dated Sept. 28th; for it now appears that seventy-one cases were returned at Berlin on the 26th, and further accounts give three more cases up to the 29th. Out of these seventy-four cases there have been forty-one deaths, fourteen recoveries, and nineteen patients are still under treatment.

King's College Hospital.—On Wednesday a meeting of the governors of the above hospital was held in the Board-room in Portugal-street, Lincoln's-inn-fields, for general business. The report of the committee regretted that the present state of the funds rendered it much to be feared that unless there be more liberality displayed, much of the blessings at present afforded to the poor in the hour of need must be denied, as demands on the hospital are so greatly on the increase that the resources are quite inadequate to meet them. During the past year, 30,607 in and out-patients have received relief, being an increase of more than 5000 over the preceding year, and a grand total of upwards of 220,000 patients since 1839.

Health of London.—During the week ending Saturday October 2, 1251 deaths were registered in the metropolitan districts. It is necessary to state that the increase which this return exhibits over previous weeks, is not the effect of an increased ratio of mortality, but is produced by an accumulation of cases, principally violent and sudden deaths, on which inquests have been previously held, but which have not been formally registered till the close of the quarter. In the ten corresponding weeks of the years 1842–51, the average number of deaths was 1000, which, with the addition of a tenth for increase of population, and for the sake of comparison with last week's return, would be 1100. The following are the fatal cases, as enumerated in this week's table, under the several kinds of zymotic disease: only 6 cases two of which were in the Small-pox Hospital, occurred from small pox, 5 from measles; 13 from hooping cough,, 8 from croup, 2 from thrush, 2 from influenza, 4 from purpura, 1 from ague, 2 from remittent fever, 1 from rheumatic fever, 4 from puerperal fever, 51 from typhus, 6 from erysipelas, 2 from syphilis, 72 from diarrhœa and dysentery, 2 from cholera, while 81 were caused by scarlatina

East India Company's Service.—The following new regulation has lately been adopted by this company with respect to assistant-surgeons.—"It is also expected that the assistant-surgeon shall produce a certificate of having diligently attended, for at least three months, the practical instruction given at one of the asylums for the treatment of the insane, and at one of the institutions or wards of a hospital especially dedicated to the treatment of ophthalmic disease. He will also be required to attend a course of lectures on the principles and practice of military surgery, if such a course shall be given at the place at which he has been educated."

Sheffield General Dispensary.—We are very happy to find upon perusing the last report of this institution, that its funds are in a healthy condition, and that its subscriptions from all classes, including clergymen, manufacturers, and their workmen, prove the high estimation in which it is held, through the benefits it confers upon the afflicted.

Proper Gratitude.—A retired drayman, in the employ of Messrs. Truman, Hanbury & Co., presented to the London Hospital 50*l*., as an acknowledgment of benefits which he received thirty years ago in that institution.

Deaths from Eating Poisonous Fungi.—A very melancholy accident occurred last week at Cross-y-Ceilog, South Wales, whereby the lives of two persons were sacrificed, owing to their partaking of some poisonous fungi, which by mischance had got mixed up with some mushrooms. It appears that on Thursday the servant of Mr. Jenkins, shop-keeper, Cross-y-Ceilog, sat down with the son and daughter of her master to a supper of mushrooms, and amongst them must have been some fungi of a highly deleterious character, for the next morning both the daughter of Mr. Jenkins and the servant girl were seized with symptoms resembling English cholera, and they subsequently expired in great agony.

London Dispensary.—At the last meeting of the governors of this institution, the report stated that the average number of patients was 200, but that lately fever having considerably increased that number, the demand upon its exhausted funds was urgent.

Public Baths.—Sir Charles Hastings, Bart. M.D., has laid at Worcester the foundation stone of public baths designed by Mr. F. T. Barber.

Dr. Anderson, chemist to the Highland Society, has been appointed by the Crown to the chemical chair in the Glasgow University.—*Scotsman.*

A New School of Medicine in France.—Our readers are aware that, besides the three faculties of medicine, viz., Paris, Montpellier, and Strasburg, there are seventeen preparatory schools of medicine in France, situated in the large provincial towns. To these a new one has just been added, which has its seat at Lille, in the north of France.

Medical Certificates.—At Berlin, a surgeon, named Kunse, has been deprived of his license, and declared incapable of holding any public office, for having given a false certificate of death, whereby the Globe Life Insurance Office was defrauded of £1000, and the Copenhagen of 1000 rix dollars. In addition to which, the three parties, including the surgeon, have been sentenced to three years' imprisonment, with hard labour, and condemned in a penalty of 15,333 thalers, or seven years' imprisonment.

THE LANCET.

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MR. WAKLEY, M.P., EDITOR. J HENRY BENNET, M.D., J. WAKLEY, JR., SUB-EDITORS.

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Lectures
ON
LITHOTOMY AND LITHOTRITY.

(*Delivered at St. Mary's Hospital.*)

BY WILLIAM COULSON, ESQ.,

SURGEON TO THE HOSPITAL.

LECTURE IV.

GENTLEMEN,—In my last lecture, after having given a brief history of lithotrity, I described to you the manual part of the operation. We left off where the calculus is supposed to have been broken up into several fragments at the first operation. But you are not to imagine that all has been done because the stone is more or less comminuted. This is only a part of your work. Nearly all the consecutive accidents of lithotrity (leaving aside those which depend on improper methods of operating) are determined by the quantity of detritus which is left behind in the bladder after the first operation, and which this organ has been unable to expel. Your earliest care, then, after having broken down the calculus, is to promote the discharge of the fragments with the least possible delay.

In very favourable cases—that is to say, where the stone is small and friable, and the urinary organs healthy—the fragments will come away with the urine without any difficulty, and no interference is required. In other cases, however, you must be prepared to assist their discharge. Thus, in young subjects the neck of the bladder is very dilatable, while the bladder itself is endowed with great expulsive power; and these two circumstances may sometimes present themselves in the adult likewise. Now, if a considerable quantity of detritus has been produced by the first sitting, the fragments may be driven in such quantity into the urethra as to block it up, and very severe symptoms may be the result. In other cases, the retention of the detritus may depend on a certain degree of atony in the bladder; the organ does not contract with sufficient force to expel the fragments; or these latter, again, may be retained by spasmodic contraction at the neck of the bladder. In all these cases, means must be employed to favour the discharge of the detritus. A variety of instruments have been invented for this purpose; but the simplest means are, in my opinion, the best.

If you have any reason to suppose that the detritus of the first operation will not come away readily with the urine, you should at once proceed to promote their discharge. A full-sized metallic catheter, largely fissured on its sides near the beak, is to be passed into the bladder, and the fluid which had been injected during the operation is to be drawn off. A portion of the detritus will come away with this fluid. A few ounces of tepid water are now to be injected into the bladder, and then drawn off as before; and the injections may be repeated three or four times, until the patient complains of fatigue, or the fluid which escapes from the bladder ceases to contain any detritus.

Even during this simple operation, an accident may occur for which you must be prepared. A fragment of the calculus may become engaged in the eye of the catheter; in such a case, on attempting to withdraw the instrument, it is stopped near the neck of the bladder, and the patient complains of more or less pain. Your own sensations and those of the patient will here warn you to cease any attempt at withdrawing the catheter, for you may wound, if not lacerate, the narrow portions of the urethra Our first care in an accident of this kind must be to endeavour to drive back the fragment into the bladder, by injecting some tepid water with a good deal of force into the catheter. Should this fail, a whalebone stilet may be passed down, and its point pressed against the fragment, so as to disengage it.

Some of the French surgeons have invented instruments for breaking up fragments thus engaged in the eye of the catheter; but it is difficult to understand how they can act in any other manner than by simple pressure; and if such be the case, the whalebone or metallic stilet is preferable.

If the retention of detritus depends on atony of the bladder or enlargement of the prostate, a different mode of proceeding must be adopted. You may first endeavour to excite the contractility of the organ by throwing in different quantities of fluid; and should this fail, the catheter-forceps, the scoop, or some other instrument acting on the same principle, must be introduced, and as much of the detritus removed as can be done without fatiguing the patient or irritating the bladder too much.

I need hardly mention that the means now indicated are to be employed immediately after each operation, in all cases where it has been judged necessary to favour the discharge of detritus from the bladder by injection or mechanical means.

The symptoms which follow the operation of lithotrity may next be noticed; and here I allude to those which really depend on the operation that has been just performed—not to those depending on the existence of a calculus in the bladder, on lesions or diseases of that organ, or on errors &c. in the manual proceeding. The symptoms must necessarily vary with the nature of the case. In the most favourable ones I have already defined what these are. The operation can hardly be said to be followed by any symptoms at all. A single operation often suffices to crush a small, friable calculus; the patient is not confined to his bed; he is well in three or four days, and the irritation arising from the introduction or use of the instruments is slight. After the operation, the patient will experience for a few hours a desire to pass his water frequently, and its discharge may be accompanied with a little scalding, or be slightly impeded. These symptoms disappear on the following day. Such are the cases, gentlemen, which lithotrity presents under its most favourable aspect; and it might not perhaps be going too far to assert, that if calculous patients were to present themselves for treatment at a very early period of their disease, the great majority of them might be cured in the same simple and rapid manner.

But through neglect, fear of an operation, and various other circumstances, precious time is lost; the disease gains ground, the calculus increases in size, and the urinary organs become more or less irritable. Here we suppose that the stone is somewhat larger and harder than in the most simple cases, yet that the urinary organs are still healthy, and the general state of the patient not unfavourably affected. The first operation in cases of this kind will often excite no greater disturbance than what I have just mentioned. But we cannot be sure that things will always turn out so favourably. The operation may have been conducted with the greatest care and skill, yet the use of the instrument may cause considerable irritation of the bladder. This organ contracts violently on the fragments of stone contained in it; the pain becomes severe, sometimes excessive; in a word, the ordinary symptoms of vesical calculus are developed in an aggravated form. The passage of the detritus along the canal of the urethra is likewise more or less painful; there is frequent desire to discharge the urine, and micturition is both difficult and painful. These symptoms, which may or may not be accompanied by a certain degree of fever, generally make their appearance on the day following the first operation; they evidently depend on irritation, and gradually subside under appropriate treatment in five or six days, when the operation may be resumed.

Whenever the calculus is large, and at the same time moderately hard, the operation is necessarily longer, and the manipulations more difficult. Hence the symptoms of reaction are always more severe. The contractions of the bladder may be extremely violent in such cases; the desire to micturate very frequent; the scalding severe. Febrile symptoms often ensue, and it becomes necessary to defer the second operation for several days. Finally, in a certain number of cases, the irritability and contractile disposition of the bladder are roused, by the first operation, to such a degree, that it would be highly imprudent to continue any attempt at crushing. The operation must be abandoned. These are rare and exceptional cases, in which the inability of the bladder to bear the introduction of an instrument, or even tepid water, can only be explained by idiosyncrasy.

The excitement of the bladder often reacts on the kidneys, and gives rise to certain symptoms connected with these organs. Their secretion is augmented by a moderate degree of irritation in the bladder, and the patient passes a considerable quantity of clear, pale urine. When the vesical irritation has been more severe, we observe an opposite effect. The secretion of urine is diminished, perhaps to such a degree as to simulate suppression; and the urine is of a deep colour; the patient complains of flying pains in the region of the kidney; and sometimes febrile symptoms, attended with insomnia and great loss of strength, supervene.

Such are the symptoms which may be fairly connected with the operation of lithotrity. You can readily understand that a great variety of other symptoms may arise, should the surgeon persist in operating on a case to which lithotrity is inapplicable; but these do not depend on the operation, and will more properly be considered under the heads of accidents, obstacles, &c., to a consideration of which I now proceed.

The obstacles to the ready performance of the operation naturally come first. What are these? On what do they mainly depend? You can anticipate many of them by simply reflecting on the nature of the operation, and the conditions necessary for its successful performance. Lithotrity, in fact, is made up of the introduction of instruments of a certain size and shape through the urethra into the bladder; of the seizing in that organ bodies of various sizes; and lastly, of working the instruments in such a manner as to break up the foreign body, and allow of its discharge through the urethra. Hence everything becomes an obstacle which impedes the introduction of the instrument, its seizing the stone, its working in the bladder. Let us follow these three divisions in their order.

For the urethra, narrowing of this canal will at once suggest itself as an obstacle. The diminution of its calibre below the required standard may depend on various circumstances. In the first place, it may be natural; that is to say, the urethra may be naturally so small, that the introduction of moderately-sized instruments is impossible; and this is one of the reasons why I would reject lithotrity for children.

The contraction of the urethra may be morbid; it may depend on stricture. Here we must evidently remove the obstacle before we can pass an instrument into the bladder. I cannot now enter on the treatment of stricture. It will suffice to say, that all slight cases are easily removed by dilatation, and even severer ones by appropriate treatment. The rule you are to observe is, that you should not think of operating until the urethra has so far recovered its normal calibre as to admit the introduction of the lithotrite without any difficulty. If you cannot bring the urethra into this condition, I should for my part prefer lithotomy.

The contraction of the canal, again, may depend on spasm; when it is generally removable by ordinary treatment, on which I need not dwell.

The sensibility of the urethra and neck of the bladder may also oppose more or less obstacle to the introduction and working of the lithotrite. In many calculous patients these parts are excessively sensitive; the bladder, at the same time, being endowed with increased contractility. It is the same condition to which I alluded, in a former lecture, when treating of Mr. Syme's operation for stricture, and which renders the prolonged use of the bougie insupportable. Here the cause is different, but the effect the same. This morbid sensibility must be combated by appropriate means, and will often disappear. Should it continue, you have to consider whether it be connected with some organic affection of the prostate or bladder; and in such case it will be prudent to abstain from operating. If, on the other hand, the abnormal sensibility appears to be merely nervous, lithotrity is not absolutely contra-indicated, according to M. Civiale's experience at least, but the operator must proceed with the utmost caution; the operations must be short, and, after each, he must be careful to withdraw as much detritus as possible from the bladder. In cases of this kind, severe rigors, followed by accession of fever or nervous symptoms, are very apt to occur, and their appearance should be a sign to you not to persist in the operation. The result may be quickly fatal.

Excessive contractility of the bladder, united to the morbid sensibility just described, presents another obstacle, which it is often very difficult to overcome. Here the proper working of the instrument in the bladder becomes impossible, the fluid—even one or two ounces—which you inject is immediately expelled; and, in such case, it is far better to renounce crushing the stone than run the risk of exciting fatal symptoms, by operating in an empty and disordered organ.

Enlargement of the prostate not only impedes the easy introduction of the instrument, but its working in the bladder; this you can readily understand, since the same cause is an impediment to the introduction of the catheter. Still, we are not to conclude that every degree of prostatic enlargement presents an insuperable obstacle. If this were the case, numerous patients would be deprived of the benefit of lithotrity. Experience has abundantly proved, that moderate degrees of the disease now alluded to are no contra-indication to the employment of lithotrity. On introducing the instrument some difficulty may be at first experienced; and this must have been great at an early period of lithotrity, when straight instruments only were employed. The curved lithotrite can generally be introduced, by taking care not to depress the handle too much when you arrive under the arch of the pubes.

On the other hand, any considerable enlargement of the prostate, especially of its middle lobe, which may project backwards into the bladder, must necessarily diminish the cavity of this organ, and therefore impede the free working of the instrument, on which the success of the operation so much depends.

In cases of this kind it would be highly improper to have recourse to the operation without having first ascertained, by careful examination, the degree and nature of the obstacle you have to contend with. The swelling of the prostate, moreover, has a tendency to deepen the depending part of the bladder behind it, in which the calculus usually lodges; the blades of the lithotrite cannot be opened freely, the movement of rotation downwards is impeded, and the stone cannot be readily seized. All these points must be taken into consideration; and hence we may conclude, that it is better to abandon the idea of crushing in all cases where the enlargement of the prostate is of such a nature as to render it probable that the operation may be either long or attended with any considerable difficulty. The same observation will apply to fungoid and other tumours of the neck of the bladder or prostate.

The condition of the bladder itself may likewise present certain obstacles which must be taken into account. In many old cases of stone the bladder is hypertrophied, the muscular fibres become abnormally developed and strong, while, from the long continuance of the disease, the organ is excessively irritable. The contact of instruments here produces great pain, and excites violent contractions. A moderate quantity of fluid is instantly expelled from the bladder. There is no room, in fact, to manipulate freely in the contracted cavity, and there is much reason to fear that any prolonged attempts may give rise to dangerous symptoms. Here, unless the stone happens to be small and very friable, leading you to conclude that the operation will be terminated in a short time, it is more prudent to abstain from lithotrity. This decision, indeed, is strengthened by other considerations; but these will be noticed when I come to speak of indications; at present we are occupied with the material obstacles only.

Another condition of the bladder which presents an insurmountable obstacle to the performance of lithotrity, is that well known under the term "sacculated." Here an accidental cavity is produced by the mucous membrane, which forms a kind of hernial sac through the muscular fibres; and when the calculus becomes engaged in one of these sacs it is said to be encysted. For such unfortunate cases the art of surgery is without resource. They are equally incurable by lithotomy. I suppose, of course, that the calculus is firmly impacted in the sac, and does not leave it; for in some cases the stone passes from time to time into the bladder, and then lithotrity may be employed with advantage.

The size and consistency of the stone are the last points to be noticed. A very large stone nearly filling the bladder cannot be seized by any instrument, and here lithotrity is evidently out of the question; for one of its elements is, that the calculus should be seized and firmly grasped between the blades of the lithotrite. Considerable size of the stone, therefore, is always an obstacle; but here I would remark, that even large calculi present, *cæteris paribus*, no great difficulties, provided they can be seized, and are at the same time friable. Phosphatic calculi often unite these two conditions.

It is difficult to lay down any absolute rule as to the exact size of the calculus which renders the operation inadvisable—that is to say, when we come to the limit which appears to separate the possible from the impossible. Calculi from two to three inches in diameter have been broken up or crushed, but the operation is always long, painful, and difficult; and it might perhaps be laid down as a prudent rule, that we should abstain from operating whenever the calculus exceeds in diameter two inches, and is at the same time hard. As for calculi which are both hard and of large size, they present obstacles that cannot be overcome without great risk of life, and are therefore by universal consent reserved for lithotomy.

Excessive hardness of the stone (and many mulberry calculi are of this kind) causes an impediment to breaking up the calculus in a moderate time, and is therefore a reason why lithotrity should not be had recourse to under such circumstances. Even when the calculus is only moderately hard, I would hesitate to undertake the operation if the bladder were at the same time irritable, or any organic lesion existed which was calculated to prolong the necessary manipulations.

At an early period of lithotrity, when the straight, three-bladed perforator was the only instrument employed, the form of the calculus sometimes presented a very great obstacle to seizing it with facility. This does not occur now. The curved lithotrite easily seizes flat calculi; and, unless they are very hard, the action of the screw or pinion crushes them with equal facility.

I have thus described to you, gentlemen, the principal obstacle which may render the manual part of the operation of lithotrity more or less difficult in its execution. Let us next turn to the accidents.

The accidents which supervene on the operation of lithotrity are, if we believe some surgeons, severe and numerous. Professor Velpeau, in his work on Operative Surgery, enumerates no less than twenty-nine; but this is a great exaggeration.

The first to which I would direct your attention, is the lodgment of the calculous fragments in the canal of the urethra. This is by far the most frequent accident to which patients who have undergone lithotrity are liable. A distinguished operator asserts that it occurs about once in four times. The younger the patient, the more likely is he to suffer from this complication, and for two reasons: the neck of the bladder is very dilatable in the young subject, and hence may give passage to fragments which are too large to traverse the other portions of the canal; and again, the bladder in young persons contracts with a considerable degree of energy, whereby the detritus, even when fine, is apt to be driven in large quantities through the neck, and accumulate in the urethra, which it blocks up more or less completely.

The same accident often occurs in the adult; and the symptoms to which it may give rise, if neglected, are of a very severe nature. The foreign body produces inflammation and ulceration of the canal, followed by effusion of urine, &c., irritative fever, and perhaps death. This latter event has occurred more than once in the early period of lithotrity, surgeons experienced in other respects, never having thought of ascertaining whether a fragment of stone was arrested in the urethra, and the cause of the patient's sufferings remaining completely unknown until after death.

The fragment may be stopped at any part of the urethra, but the commonest seats are the neck of the bladder, the membranous portion, the middle of the spongy portion, and the fossa navicularis. Contraction existing at any part of the canal, whether spasmodic, or of a more permanent nature, will favour the retention of detritus, and you may expect the accident to occur whenever the urethra is very irritable, the contractile power of the bladder great, and the quantity of detritus resulting from the first operation considerable. These three conditions are evidently the most favourable to the development of the accident which we are now considering, for you have a large mass of matter acted on by a strong propelling force, and an excessive contractility of the canal through which the matter or detritus is to be driven.

The symptoms arising from impaction of a fragment in the urethra are various. A fragment of any size, particularly if it be hard and rough, soon produces more or less sensation of uneasiness in the part, and this quickly passes into pain. The patient suddenly discovers that he is unable to pass his water as freely as before, or he may have complete retention; at all events, micturition is difficult and painful, while the desire to pass water is frequent and urgent. Should the obstacle escape the notice of the surgeon—an error now very unlikely to occur—or should immediate relief be not afforded, general symptoms soon set in; and it is a remarkable fact, that these are very often totally disproportioned, speaking theoretically at least, to the local cause whence they arise. You could never imagine, *à priori*, that a small fragment of stone in the urethra would produce the severe and dangerous constitutional disturbance which it often does. The patient becomes nervous and irritable, he is unable to sleep, irritative fever may ensue, preceded or accompanied by severe rigors, &c.; and if the bladder becomes irritable at the same time, from retention of detritus, the case may terminate fatally. A highly interesting and instructive case of this kind occurred some time ago in the practice of Mr. Fergusson, at the King's College Hospital. The impaction of fragments in the urethra, in this case, caused excessive local pain, followed by a high state of constitutional irritation. The fragments were removed with the urethra forceps, or broken up; but the accident recurred: the urethra became inflamed; the inflammation extended to the bladder, ureters, and kidneys; an abscess formed in the groin, and the patient sank in a deplorable state, after three weeks' suffering. This case, and many others of a similar kind on record, show us that too much attention cannot be bestowed on the accident to which I now allude. It requires prompt and effectual means for its relief.

As soon as you have any reason to suspect its existence, a sound should be passed into the urethra, to ascertain the nature and seat of the fragment; for the remedial means differ somewhat according as the fragment may have become impacted in the anterior, the membranous, or the vesical portions of the urethra. A large metallic sound may be used at first; but if you fail to meet the foreign body with this instrument, the symptoms continuing all the while, a large sized soft bougie is to be passed down the urethra, for it is possible that the fragment may be lodged in one of the lacunæ. If this be the case, the edge of the fragment, as M. Civiale observes, seldom fails to leave a mark on the bougie, whereas a metal sound might pass over it without any sensation being communicated. Having ascertained the seat of the fragment, our next care, of course, is to remove it without delay. For this several means have been proposed, and each may be employed with success according to circumstances. The fragments may either be pushed back into the bladder, extracted whole, broken up in the urethra, or removed by external incision. But prevention is better than cure; and I shall therefore now briefly notice the precautions which M. Civiale's great experience has suggested for the prevention of the accident.

The surgeon can, generally speaking, form a pretty correct idea of the cases in which impaction is most likely to occur, and in such cases he should employ the precautionary measures I am about to mention. Thus, let us suppose that the neck of the bladder and membranous portion of the urethra are very irritable, and at the same time dilatable; that the bladder is capable of contracting with considerable force; that your first operation has given rise to a good deal of detritus. In such cases you may apprehend impaction of the fragments, and should take your measures accordingly. The patient should not be allowed to make water while on his knees, but must endeavour to do so while on his back. Immediately after the operation, several injections of tepid water should be thrown into the bladder by means of a large catheter with large eyes, and this for the purpose of removing as much detritus as possible. If the bladder be very irritable and contractile, it is necessary, as soon as the first operation has terminated, to introduce a large flexible sound into the bladder, and leave it there. You thus fill the canal of the urethra, and prevent the passage of detritus; but in some unfavourable cases the patient is unable to bear any instrument permanently, and hence, if it causes too much irritation, you are not to persevere.

When operative proceeding becomes necessary, it may be directed, as I have said, to the object of pushing back, extracting, or breaking up the fragment. If the latter be impacted in the neck of the bladder, or behind the triangular ligament, you should, in the first instance, make an attempt to push it back into the bladder. If the fragment be small, and seated near the neck, this can be easily done with the sound or bougie. Should any resistance be experienced, it will be well to try the effect of injecting tepid water with some force, while pressure with the catheter is exercised at the same time. M. Civiale speaks highly of this as an auxiliary means, and you should never neglect having recourse to it. On making pressure with the catheter, great care must be taken that the instrument does not pass forwards between the wall of the urethra and the foreign body, or even make a false passage, which might readily occur if too much force were employed with a metallic instrument of small calibre. Indeed, in all operations on calculous patients, you cannot too strongly bear in mind that the mildest means are the best, provided they be efficacious. The genito-urinary organs are seldom in a state of perfect health; they take on irritation or inflammation most readily, and this latter may within a few hours convert a favourable case into one of hopeless danger.

Should you find it impossible to push back the fragment from the membranous portion of the urethra, where impaction very often takes place, you have only the choice between extraction or crushing. Whenever the former can be effected without much difficulty, it is to be preferred.

Sometimes a blunt hook has been employed, sometimes forceps of various kinds, called "urethral forceps." From the dilatable nature of the membranous part of the urethra, fragments seated there may be often broken up without any great difficulty. Some surgeons crush them between the blades of a strong forceps, others employ small lithoclasts with flattish short blades, such as the one of which I now show you a drawing.

Fig. 49.

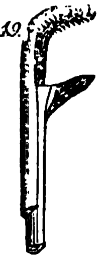
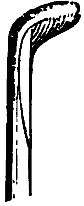


Fig. 50.



M. Civiale's Urethral Lithoclast.
Fig. 49.—Shows the instrument open.
Fig. 50.—Shows the instrument closed.

If you can succeed in seizing the fragment with this instrument, it is easily crushed; but you must take care not to pinch the walls of the urethra between its blades. It must also be borne in mind that the manipulation of instruments in the urethra is a more delicate and painful proceeding than that of crushing a stone in the bladder. The vital tissues are in close contact with the forceps or lithotrite, and every movement produces more or less pain.

Fig. 51.

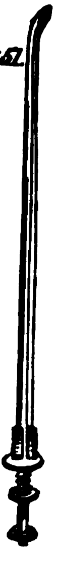


Fig. 52.

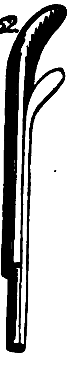


Fig. 53.

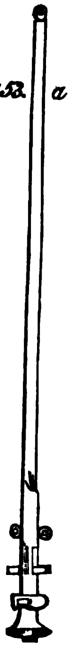


Fig. 54.

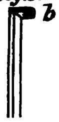


Fig. 51.—M. Civiale's lithoclast for fragments in the straight part of the urethra.
Fig. 52.—Shows the extremity of the instrument closed.
Fig. 53.—M. Leroy d'Etoilles' instrument for the extraction of fragments from the urethra. It is a flat canula, having at the end a small scoop, hollowed like an earpick, which is capable of being bent to a right angle by means of a hinge and stilet, which traverses the canula, *a*, shows the end of the instrument as it is introduced behind the fragment.
Fig. 54.—*b*, the end now bent to a right angle, so as to embrace the fragment.

The fragment, again, may be impacted, not in the membranous portion of the urethra, but at some point anterior to it, between the glans and bulb. It was formerly the practice to treat all cases of this kind by external incision, and I may here remark, that if every other means fail, you must have recourse to the knife; but in modern practice such a necessity does not often occur, in connexion with lithotrity at least. However, if the fragment were large, the patient irritable, and any difficulty in seizing the foreign body presented itself, I should prefer cutting into the urethra to the risk of lacerating the corpus spongiosum by any degree of force. The fragments may be extracted or crushed, as in the former case; the straight two-bladed forceps with elastic branches, contained in a sheath, may be employed for extraction; or when the fragment is small, a blunt hook, a probe, &c., may be used; and the operation is generally the more easy, since the penis can be grasped behind the fragment, so as to prevent its displacement, while an assistant draws the organ forwards. In this way, the blades of any well-constructed forceps can generally be passed on either side of the fragment without much difficulty, or it may be crushed *in situ* with an urethral lithoclast, the male blade of which is much shorter than the female one, as you see in the drawing.

Fig. 55.

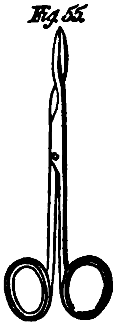


Fig. 56.

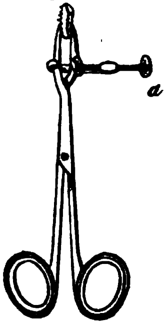


Fig. 57

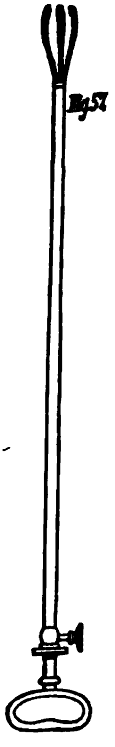


Fig. 58.

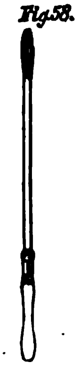
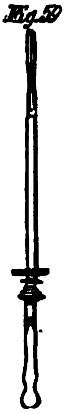


Fig. 59



Figs. 55, 56.—M. Leroy d'Etoilles' forceps for the extraction of fragments; when the latter are too large to pass readily through the fossa navicularis, they are crushed by the hook and screw, fig. 56, *a*, attached to the blades.
Fig. 57.—Hunter's urethral forceps modified.
Figs. 58, 59.—Weiss's instruments for the extraction of calculi from the urethra. Fig 58 shows an instrument open; fig. 59, an instrument closed.

Finally, a considerable fragment of the calculus may become impacted in the fossa navicularis, and produce retention of urine and detritus behind it. I show you drawings of instruments which have been contrived for the extraction of fragments from this situation.

From the situation of the obstacle, so close to the external orifice of the urethra, you might imagine that it should be extracted with hardly any difficulty. But this is not always the case. The fragment is too firmly impacted to be removed with the forceps, or even seized between the blades of any instrument; and in such cases it becomes necessary to divide the external meatus slightly, with an instrument similar to that used for the internal division of stricture.

Let us now turn to the other accidents, *real* or *presumed*, of lithotrity. There is here, gentlemen, an important distinction to be made, indicated by the two words I have just employed, for [illegible] of the accidents attributed to the operation do [illegible] essentially belong to it; and in estimating the value or applicability of any new operation, we must be careful to distinguish those accidents which may be fairly connected with the proceeding, from such as depend on causes that are foreign to it—want of skill in the operator, imperfection of instruments, &c.

Keeping this distinction in mind, let us now consider the principal accidents which may complicate an operation of lithotrity, beginning with those which I have denominated *presumed*—that is to say, which are not necessarily connected with the operation, but depend rather on the operator, his instruments, and defective modes of proceeding; and, above all, on perseverance with the operation in cases for which it is manifestly unsuited. In scientifically discussing the merits or demerits of any surgical operation, we have no right to lay all that may occur to the door of the operation. One of our museums contains the trachea of an unfortunate patient, with a large molar tooth sticking in it, which a bungling dentist allowed to drop into the larynx while performing the operation of extraction; yet who would think of saddling the operation with the result of such an untoward event? It is the same for many of the objections made to lithotrity.

Thus, it is said the urethra and neck of the bladder may be lacerated, either during the introduction or withdrawal of the instruments. Such an accident has undoubtedly occurred, and more than once, at an early period of lithotrity; but we may fairly deny that it is necessarily connected with the operation. The size of the curved lithotrite now employed does not exceed that of a large catheter, and, when properly introduced, the manipulation is seldom more difficult than the common operation of passing an instrument to draw off the urine. If a surgeon were to lacerate the urethra or neck of the bladder while passing a catheter to empty this organ, you would not surely attribute the accident to the operation, but to the operator.

In certain cases, indeed, where the prostate is much enlarged, where tumours block up the neck of the bladder, &c., violence may be committed; it may be impossible to avoid inflicting a certain amount of injury on the canal; but here, again, I would ask you, should we not rather attribute any accidents which occur to the injudicious attempt at applying lithotrity to a case for which it is not suited? If you attempt to force a small stricture with a metallic sound you may easily lacerate the walls of the urethra; but is this an argument against methodical dilatation, practised according to the rules of our art? Are you to reason from what may occur to what should occur?

As for laceration or injury inflicted during the withdrawal of the instrument, they can occur under two circumstances only. If the urethra and neck of the bladder have admitted the lithotrite, they should also allow of its extraction, unless the instrument has become deformed in the bladder; and this may arise in two ways: the instrument bends or breaks—I shall presently allude to this; or the instrument may be deformed—that is to say, the branches beyond the curve may be more or less separated from each other by the detritus engaged in the dentated and concave portions. Should this separation take place to any degree, and the operator persist in withdrawing the unclosed blades with force, he must inevitably lacerate the neck of the bladder or a narrow portion of the urethra. Here again I may ask, does not the accident depend on neglect of the rules which experience—I might even say common sense—have established? I told you before, that you should never think of withdrawing the lithotrite without examining the scale to see whether there is any separation of the blades, from detritus or any other cause. In such case no attempt at withdrawing the instrument is to be made until the detritus has been removed by the means which I have pointed out to you already. If, as has occurred in many unfortunate cases, the surgeon endeavours to force an instrument through the canal, well knowing at the time, or at all events having it in his power to know, that the instrument is too large to traverse the urethra, is it the fault of lithotrity if he lacerate this canal?

The instruments may break in the bladder, or they may bend and warp, their extraction then producing formidable injury or even fatal results. This objection was much insisted on many years ago, yet at the present day it appears so futile that one is almost ashamed to discuss it. Are the faults of the cutler to be saddled on the surgeon or on surgery? Does imperfection of the instrument necessarily imply imperfection of the art? Our forefathers employed wooden cannon, which of course often burst and destroyed more friends than foes; but this proved nothing against the efficiency of the gunpowder as a propeller of balls. To have any value, it should be shown that the amount of force necessary for crushing calculi is of such a degree as to render it probable that the instruments employed must either yield or break. It were useless for me to discuss the causes which formerly led to the accident I now consider. It was partly the fault of the instrument, partly of the surgeon; it is, I believe, almost unknown at the present day: it never occurred in the hands of the surgeon to whom we are indebted for lithotrity, and who has performed more than 600 operations without ever having had to deplore so unfortunate an accident. To guard against it, as far as possible, the surgeon should never think of operating on the living body without having previously assured himself, by experiment on hard substances, that his instruments are well-made, well-tempered, and capable of supporting the amount of pressure which they are intended to exercise; and, should the accident occur, he must be prepared to cut into the bladder, and either extract the fragment or redress the deformed instrument as best he may. You will never, I trust, be reduced to so terrible an extremity.

The mucous membrane of the bladder may be pinched up between the blades of the instrument, or lacerated; and the bladder itself has been perforated. In ordinary cases it is difficult to understand how such accidents can occur with the instruments now employed. The bladder is more liable to be pinched when the calculus is very small, or while the surgeon is endeavouring to seize the fragments of a stone already comminuted. The accident will also be favoured by the practice sometimes employed, of allowing the injection to escape suddenly from the bladder, in order to induce this organ to contract, and bring the calculus within the grasp of the instrument. This is a faulty method, adopted to supply want of dexterity. With the flat broad crusher, the surgeon will generally be able to avoid including the walls of the bladder within the blades; but if such an accident did arrive, his own sensation of a soft body and the feelings of the patient would, I think, give him sufficient warning to desist in time.

LECTURE V.

Gentlemen,—In describing the accidents attributed to or connected with lithotrity, I have noticed those which depend more or less on defective methods of operating, on want of due care, &c.; but there are others which evidently depend on the operation itself, and may therefore be fairly attributed to it. Let us now take up these, reserving for the last certain effects of a doubtful nature, and which may possibly belong to both categories—that is to say, may partly depend on the nature of the operation, and partly on causes extraneous to it.

You can easily anticipate some of the accidents and complications necessarily connected with an operation of lithotrity. The urethra, for example, may be lacerated. This I have not hesitated attributing either to the surgeon or to defective instruments; but although this amount of injury may not be inflicted, it is almost impossible to introduce lithotritic instruments through the urethra, and manipulate them in the bladder for a few minutes, without exciting more or less painful sensations. Pain, then, is the first accident of this class which naturally presents itself to our notice. It may be excited during the introduction of the instrument; while the stone is being crushed; during the withdrawal of the instrument; or, lastly, may come on some time after the first operation. It is useful—I may, indeed, say necessary—to note the time at which pain is experienced, for many indications may be deduced from this circumstance.

When lithotrity was in its infancy, the most contradictory statements prevailed relative to the amount of suffering which the operation necessarily entailed. Its advocates gave a highly-coloured picture of the operation, which some described as perfectly painless; while its enemies—and they were both numerous and powerful—described the operation as one generally attended with the most horrible sufferings. Time has done justice to exaggeration on both sides, and we are now in a condition to arrive at the truth.

The operation of lithotrity always produces more or less pain and uneasy sensations; but when the operation is properly conducted, and the patient in a favourable condition, the amount of pain is so trifling that it need hardly be taken into account. Under such circumstances, the passage of the lithotrite along the canal of the urethra does not give more pain than the introduction of a full-sized catheter. When the instrument passes under the arch of the pubes, some dragging pain is generally produced, because it requires some dexterity to adapt the curve of the instrument to the curve of the urethra; but this lasts for a second or two only. The contact of the instrument with the walls of the bladder gives rise to much less pain than you might *à priori* conclude. The bladder, when in a healthy state, is not very sensitive; besides, you must remember that the instrument does not work in an empty bladder, but in one where the calculus is surrounded with fluid; and if you cannot attain this latter condition of isolating the stone, you had better give up the notion of attempting to crush it. In the bladder, then, the sensations are seldom acute: the patient feels some uneasiness, followed by a strong desire to expel the contents of his bladder, but nothing more. In a few hours after the first operation, the urinary organs have recovered their usual state; and it often happens that the patient requires no assistance to walk from the place of operation to his own abode. I do not pretend to affirm that all cases will present this favourable condition, which characterizes those only that are of a simple nature. In more difficult cases, it is impossible to avoid inflicting a certain amount of pain; but when the operation has been restricted within its proper limits, and due precautions are used, this pain is always of a nature to be readily borne by the patient. Should it be excessive, the accident will probably depend on some error connected with our method of operating, or the circumstance that the case is not suited for lithotrity. Any violence or jerking movements must increase the amount of pain inherent to the operation; and still more so, the custom formerly prevalent of prolonging the operations beyond five or six minutes. You can readily understand, that if a surgeon treats the bladder as he would a mortar, and proceeds to grind down a calculus as he would a lump of rhubarb, the living tissue must soon experience the effect of his inconsiderate manipulations: but I now presume that the operation, in all points, has been scientifically conducted; and when this is the case, the pain is either insignificant, or of a very endurable kind, in the great majority of instances at least. The contrary, however, occasionally happens. The bladder and urinary organs may be apparently healthy; the calculus small; every precaution has been employed, yet the neck of the bladder is excessively irritable. Here the passage of an instrument over the morbidly sensitive parts excites excessive pain; and if the operation be persevered in, violent and dangerous constitutional disturbance may ensue.

Many cases of lithotrity are on record in which the pain is described as having been of the most violent kind, and its effects of a disastrous nature; but on examining them with attention we shall generally find that the calculus was large and hard, the operations being proportionately prolonged; that the prostate or bladder was diseased, and the latter organ excessively irritable; that fungous or other tumours diminished its cavity, and therefore impeded the free play of the instruments, &c. The infliction of pain and injury is inevitable under such circumstances, but they should be attributed, not to the operation itself, but to its improper application. The pain occasioned during the withdrawal of the lithotrite, and from the passage or impaction of fragments in the urethra, has been noticed in my last lecture; and the pain which comes on at a certain interval after the first operation evidently depends on some lesion of the genito-urinary organs.

This perhaps might be the proper place to notice the applicability of chloroform to operations for the cure of stone; but I cannot enter at any length on this point, although it is a very interesting one. I shall recur to it again in connexion with lithotomy; in the meantime I may observe, that I am not an advocate for the use of anæsthetics in lithotrity.

The same cause which produced pain may likewise give rise to more or less discharge of blood from the mucous surfaces of the urethra and bladder. This very rarely attains a degree sufficient to deserve the name of hæmorrhage.

You are well aware that the passage of a common sound in cases of stricture is often followed by some discharge of blood, and the same effect may follow any slight abrasion of the urethral surface caused by the passage of the lithotrite. The surface of the bladder, particularly in old patients, may likewise furnish a small quantity of blood from abrasion; or the capillary vessels in the neighbourhood of the neck of the bladder may be the seat of the discharge, and this appears to be the case most commonly; but in all these cases the hæmorrhage is slight, and soon ceases of its own accord. I presume, of course, that no severe injury has been inflicted on the urethra or bladder by the operator, for that no complications exist to which the hæmorrhage can be attributed. Bleeding to any considerable amount has never occurred in the long and extensive practice of M. Civiale, and he considers that the accident, when it does occur, should be set down to the account of the operator, or to the neglect of those rules which experience has sanctioned. Still several cases of severe and even fatal hæmorrhage are on record. A patient, operated on at the Hôtel-Dieu, in 1832, died of hæmorrhage from the bladder; and Mr. Key relates a case where the bleeding was so violent as to render necessary an immediate recourse to lithotomy. It is not easy to account for such unfortunate accidents: unless we admit the infliction of some injury, or the presence of fungous tumours, &c., in the bladder, it is difficult to understand how anything like serious hæmorrhage can occur during an operation which has been properly performed.

In a few cases the discharge of blood takes place at a certain interval after the operation, and not during its performance. M. Civiale attributes the hæmorrhage, under such circumstances, to over-distention of the bladder with urine, or to the violent efforts which the patient has made to expel the contents of the bladder during the operation. The mucous membrane of the bladder is congested, and any strong action of the subjacent muscular tissues will easily give rise to an exudation of blood, just as we find takes place in cases of sore-throat. To arrest the bleeding, in cases of this kind, the urine should be drawn off frequently, or an instrument be allowed to remain permanently in the bladder. By keeping this organ in a state of perfect repose, we avoid the bleeding which has been occasioned by its inordinate action.

Although the hæmorrhage now spoken of seldom occurs to a troublesome, much less a dangerous extent, it may influence the results of an operation in two ways. The blood coagulates in the bladder, the fragments of the calculus become enveloped in the clots, and the surgeon experiences some difficulty in completely clearing out the bladder; the injection of tepid water will, in such cases, facilitate the evacuation of the coagula; or the latter may be of such size as to cause temporary retention of urine; and to this accident I shall now direct your attention.

The surgeon who undertakes lithotrity should never for an instant lose sight of the condition of the bladder, either immediately after the first operation, during the intervals between each operation, or during the whole course of the treatment, for retention of urine may supervene at any of those periods, and if this be overlooked or neglected, the results may be rapidly fatal.

Surgeons who have had frequent opportunities of performing lithotrity cannot fail to have remarked, that, while the use of the instruments almost invariably determines an urgent desire to empty the bladder, no sooner is the operation over than this desire ceases in a great many cases, and is replaced by the contrary condition, a sluggishness of the organ, which may be carried so far as to produce complete retention of urine. Hence a practical rule which you should never neglect, that your first care after each operation should be to determine whether or no the bladder is able to expel the fluid contained in it. Sometimes the cause of retention is so slight, that a warm bath is sufficient to dispel it; but in all cases it is of course our duty to ascertain in the first instance what the cause may be. I have already spoken of coagula in the bladder and the impaction of fragments in the urethra. These are mechanical causes; but in the great majority of cases, the cause is physiological. Sometimes it may be traced to a spasmodic condition of the urinary passages, sometimes to atony or paralysis of the bladder, and very often to a combination of these two circumstances. In elderly patients, particularly when the prostate is somewhat enlarged, the neck of the bladder is often the seat of spasmodic contraction, which may extend even along the whole course of the urethra.

This spasmodic tendency may exist previous to lithotrity, or it may be developed by the introduction and working of instruments, especially when the operations have been too long, and irritation of the urinary passages has been the consequence. The warm bath, followed by a full dose of opium, often removes the condition of which I now speak, but it will be more prudent, as I have already observed, to draw off the urine with a catheter as soon as any difficulty of emptying the bladder occurs.

The retention of urine which ensues on partial paralysis or atony of the bladder is a much more serious affair, not only from the nature of the cause, but from the insidious character of the affection, which may be readily overlooked. This atonic condition is often connected with sub-acute inflammation of the bladder, and any long retention of the urine may have the most disastrous effects. Hence the urine must be drawn off as often as it accumulates; it is not advisable to leave a catheter permanently in the bladder, for fear of increasing any latent inflammation which may exist already. I shall return to this subject again when treating of indications.

Pain, hæmorrhage, and retention of urine are the chief local accidents which arise from the operation of lithotrity. The general accidents may be comprised under rigors, febrile attacks, and nervous disturbance.

The rigors and febrile attacks have been generally attributed to some peculiar susceptibility of the patient, but this is merely a way of turning the difficulty without solving it or leading to any practical indication. They are not proportionate to the amount of pain experienced during the operation, but they are more frequent and severe after the first than the subsequent operations. Experience likewise proves that both rigors and fever are much more apt to come on in a severe form when the operations have been prolonged, and hence another argument for not continuing to fatigue or excite the urinary organs by prolonging the manipulations beyond a certain time.

The febrile symptoms arising from impaction of fragments in the urethra have been noticed before, and I have likewise described the peculiar form of fever, preceded by intense rigors and often mistaken for intermittent fever, which depends on purulent infection of the blood from abscess or phlebitis.

The manipulations necessary for breaking up a calculus in the bladder may excite inflammation of this organ. It were useless to deny this fact, and it would be culpable to endeavour to underrate its importance. Cystitis, then, may be a result of the operation, and acute inflammation of the bladder occurring in conjunction with stone is generally fatal; while, on the other hand, chronic cystitis is an obstinate disease, when once established reducing the patient to a state of constant distress and suffering. It is, then, a point of the highest importance to determine how far the operation of lithotrity is, *per se*, calculated to develop the accident of which we now speak. This, gentlemen, is a very delicate subject, and one which would take some time to enable me to lay the whole case completely before you. It would be necessary to distinguish the secondary effects of the presence of stone in the bladder from those produced by the operative proceeding. To determine how far any inflammation excited may have been the result of the operation in itself, or of the operation performed on parts already diseased, it would be necessary for us to examine whether the previous condition of the urinary organs was not such as to exclude all notion of operating—whether the manipulations were conducted with sufficient care, and the operations not prolonged beyond a reasonable period. On these and many other points of the same kind, I cannot now enter. It must be sufficient to lay before you what I believe to be the results of experience in this matter.

In the first place the internal surface of the bladder is far from possessing the degree of sensibility which you might, *à priori*, attribute to it. Unless roughly handled or previously diseased, it will bear the necessary amount of manipulating without injury.

In the next place, experience demonstrates that when the case has been properly selected, according to the indications which I shall presently explain to you, and when the operation has been properly performed, acute cystitis is of very rare occurrence. The reverse may be expected to occur, and, unfortunately, has often taken place, when surgeons have persevered in attempts to destroy large calculi in diseased bladders; when experiments have been made with new-fashioned instruments of imperfect construction; when disease of the prostate has occasioned protracted proceedings; when paralysis of the bladder, or irritable bladder with some obstruction at the neck, has given rise to neglected retention of urine. In these and similar cases, cystitis has set in and rapidly proved fatal. Whether the accident was inevitable or not I cannot now stop to examine; but, as the result of experience, I can affirm that acute cystitis occurs in a small proportion of properly selected cases only, and this I shall prove to you by statistics.

Peritonitis may also set in after lithotrity; this accident is still more rare than cystitis, nor can we understand how it should occur without the infliction of some severe injury on the bladder. It has followed perforation of this organ, either with the instrument or a short fragment of the calculus during efforts at extraction; it has also arisen as a consequence of the extension of inflammation from the bladder to its peritonæal coat. The remarks which I have just offered to you relative to cystitis, render it unnecessary for me to say anything more on this complication.

Cystitis and peritonitis occur much more frequently in the practice of some operators than of others. This we discover at once from the history of the various cases which have been published; and it leads to the conclusion that such accidents rather depend on the application of lithotrity to cases unsuited to the operation, than to any fault inherent in the operation itself. If the surgeon, as was formerly too often the case, will persevere in endeavouring to break up a calculus in a contracted, irritable, and diseased bladder, for half an hour or an hour at a time, can we wonder that acute or chronic cystitis is the result? We should, indeed, rather be astonished that the accident is not developed more frequently.

In a certain number of cases, even when every indication has been strictly fulfilled, the operation of lithotrity has excited nervous symptoms of more or less severity; and sometimes also produced very great derangement of the digestive organs. The nervous disturbance has been attributed to the shock inflicted on the economy. It is similar to that which occasionally results from introducing a catheter or a bougie, and is seen, though in a much more aggravated form, after lithotomy. As for the digestive organs, we need not be surprised that the pain or moral influence of the operation should contribute to increase the disturbance which calculous disease of the urinary system is so likely to determine.

Several minor accidents are apt to follow the operation; but these are of so little importance, that a simple enumeration of them will suffice. The introduction of the lithotrite often excites slight inflammation of the mucous surface of the urethra, followed for a few days by scalding and increased secretion of mucus. The same cause of irritation may give rise to inflammatory action which extends along the spermatic cord to the testicles. The same accidents present themselves every day in the treatment of diseases of the urethra unconnected with stone; they are seldom severe; but the inflammation of the testicle may occasionally be so acute as to render it necessary to suspend the operation for several days.

The last accident to which I shall direct your attention is one that was considered almost inevitable at an early period of lithotrity, and the fear of which retarded for many years the general adoption of the operation. I allude to effects produced by the retention of fragments of calculus in the bladder. Many surgeons formerly held that, even if we succeeded in breaking up the calculus without difficulty into small fragments, some of these latter must inevitably be retained in the bladder, and there produce not only more or less inflammation, but, what is worse, a relapse of the original disease in an aggravated form, each fragment being converted into a new stone.

If this reproach were well founded, lithotrity must have been abandoned long ago; but fortunately the dangers now mentioned, though in theory they seem very probable, are not found to occur in practice. Reasoning *à priori*, we might conclude that the sharp fragments of a calculus which has been broken up in the bladder should produce much greater irritation of the mucous surfaces than the same calculus has done while whole and smooth. But experience does not confirm the supposition. Great relief is generally produced by mere comminution of the stone, independently of extraction; and this perhaps may be explained by the circumstance that the weight of the calculus, and consequently its pressure, on a limited portion of the floor of the bladder, is diminished by breaking up the stone.

The shape of the fragment, then, does not necessarily produce irritation; nor, on the other hand, is it impossible either to detect the presence of small fragments in the bladder or promote their expulsion. A careful and methodical examination of the bladder with the lithotrite will generally suffice to determine whether any fragments have been left behind in the bladder; and if none be found—if the patient exhibit none of the symptoms dependent on the presence of a foreign body in a bladder—if his urine continue healthy, we may fairly conclude that the cure is complete. Should any fragments remain, you are already aware in what manner their expulsion from the bladder is to be promoted, until that organ is completely freed from the foreign body.

On the other hand, it cannot be denied that relapse often occurs after the operation of lithotrity; and I shall therefore now endeavour to explain under what circumstances this accident may take place, and its real connexion with the operation which has been performed.

The question of relapse after operations for the cure of vesical calculus is a very interesting one; yet it has been much neglected by nearly all writers on lithotomy, and M. Civiale is the only author on lithotrity who has examined it in anything approaching to a satisfactory manner.

The following remarks may therefore be interesting, although far from exhausting the subject. We do not, in fact, possess sufficient elements to determine any one of the points connected with the history of relapse after lithotomy and lithotrity, and what I now offer to you must be taken merely as a contribution towards it.

Writers on calculous disorders generally allude to the possibility of relapse after operation, but in so vague a manner that their remarks are of little assistance to us; while the records of operations for the extraction of stone by cutting have for the most part been kept so imperfectly, that it is impossible to arrive at any certain data for determining the relative frequency of the accident.

The Norwich tables of Mr. Crosse show twelve cases of relapse after 704 operations of lithotomy, or one in fifty-eight. From the records of operations performed at the Hospital of La Charité in Paris, between the years 1806 and 1831, we find that six cases of relapse presented themselves after seventy cases of lithotomy, or one in eleven.

M. Civiale informs us that the proportion indicated by returns which he received from Bavaria is five in 162 operations (one in thirty-two,) from Bohemia, one in forty-six operations; from Dalmatia, one in forty-three operations.

At the Luneville Hospital, founded by Stanislaus, king of Poland, for the treatment of calculous disorders, the registers show thirteen cases of relapse after 1492 operations of lithotomy, or one in 116 cases.

According to the returns received by M. Civiale from the whole of France, the proportion of relapses appears to be one in seventy-four cases, or thirty-two in 2368 operations; but of these latter, 314 were cases of lithotrity.

The most correct registers are probably those kept at the Norwich and Luneville Hospitals, and from them we learn that relapse occurs after lithotomy once in fifty-eight cases.

For lithotrity we possess no other data than those furnished by M. Civiale from his own practice; these are exact and trustworthy, for M. Civiale has published a brief account of every case of calculous relapse after lithotrity which occurred to him. After 548 operations, relapse followed in fifty-five cases, giving a proportion of one in every ten cases nearly.

Such is a general view of the relative frequency of relapse after lithotomy and lithotrity, so far as the documents we possess enable us to get. After lithotrity, every tenth patient may suffer relapse; after lithotomy, the proportion seems reduced to one in sixty.

The return of the disease may take place under two circumstances, which it is highly necessary to distinguish. One or more fragments of the original calculus may have been left in the bladder, and become the nuclei of secondary formations; or the bladder may have been completely freed, and the relapse depend on the same constitutional disposition which gave rise in the first instance to the deposit of calculous matter from the urine. The latter cases are simple recurrences of the disease and cannot be connected with the operation, whether it be lithotomy or lithotrity; but in the former we cannot avoid attributing the accident in great measure either to the operator or to the method which he has employed.

It is not always easy to distinguish whether the new calculus, in cases of relapse, has been formed on fragments left behind in the bladder, or is merely a product of the original calculous diathesis, yet unless we make this distinction, it is clearly impossible to say how far the operation of lithotrity should be held responsible for the relapse.

When the formation of the second calculus depends on continuance or return of the original diathesis, a certain interval of time generally elapses between the operation and the appearance of the secondary accidents. The patient may enjoy perfect immunity for many months, or even several years. The secondary calculi, if I may so call them, are likewise often of the same kind as those primarily developed. This was observed in one-half of M. Civiale's second series of cases. The calculi are usually single. Now, when relapse occurs in consequence of the retention of fragments, the opposite of all this will be observed.

The patient never ceases completely to suffer after the operation. During the first few days he may complain less than usual, but the painful sensations inevitably connected with the presence of a foreign body in the bladder are sure to recur. The calculi of relapse from retention of fragments are, as we might expect, commonly several, not single, though there are many exceptions, and these secondary formations, more or less rapidly constructed on the nuclei of the original stone, are very often of the phosphatic kind. The irritation of the bladder caused by the operation or by the fragment, explains this tendency to the deposition of phosphatic calculi, and, indeed, a quantity of friable matter may be rapidly thrown down from the mere effect of inflammation or high irritation of the mucous surfaces, in cases where no trace of calculous fragment has been left behind in the bladder.

The practical deductions which I would draw from the preceding remarks are chiefly two. In the first place, you are not to consider your patient as completely cured, and abandon him to nature, because the foreign body has been removed from his bladder. The calculous diathesis may remain, and, unless proper medical treatment be employed to correct it, relapse may occur, and the occurrence be set down to an operation which has been guiltless of it. This applies to lithotomy as well as to lithotrity. By the former, the whole of the foreign body is usually removed, but the operation leaves the constitutional disposition untouched: the calculus is re-formed again and again. Patients have been cut as many as four times.

The second point I would notice is the necessity of paying great attention to the state of the bladder after all operations of lithotrity. You may have succeeded in removing every trace of fragment, and believe your patient free from all danger of relapse; yet if any severe irritation of the bladder be allowed to continue, there is great risk of the deposit of the phosphates, which sometimes takes place in great abundance, and in a surprisingly rapid manner. Fortunately, this new matter is of a friable nature, more like mortar than a calculus; it is easily crushed, and its removal seldom entails any unpleasant consequences.

Relapse, then, as you perceive, is not an accident peculiar to lithotrity. It occurs after lithotomy likewise, but less frequently.

LECTURE VI.

PATHOLOGICAL EFFECTS OF URINARY CALCULI.

GENTLEMEN,—I had proposed taking up the subject of the indications of lithotrity to-day; but on reflection it seemed to me better to let the pathological effects of urinary calculi precede any account or consideration of the cases to which the operation may be applicable.

The propriety or inexpediency of operating in any given case—in other words, the indications—mainly depend on the condition of the genito-urinary organs, and it will therefore be of great assistance to you, towards appreciating what will be said relative to indications, to have a correct idea of the various effects produced by vesical calculi on the urethra, prostate, bladder, and the urinary system in general.

In the following remarks I shall confine myself to a notice of those changes which are more immediately connected with lithotomy and lithotrity. A few words on some physiological effects of vesical calculi may, however, be useful.

The urethra does not necessarily suffer from the presence of a stone in the bladder; the morbid changes observed in the urethral portion of the genito-urinary system generally depend on the development of small calculi in the canal, or on their stoppage in it during their passage from the bladder. I have already spoken of urethral calculi, and shall not return to this part of the subject again. What I would now allude to are the effects of vesical calculi exercised sympathetically on the urethra. These are chiefly from irritation, and the latter sometimes radiates forwards along the urethra, as it unquestionably often does upwards along the ureters to the kidney. We can conceive how great and long-continued irritation from a foreign body in the bladder may give rise to inflammation of the urethra, and possibly to inflammatory stricture of that canal; but this is a very rare occurrence. The disorder of the urethra, in the great majority of cases, is merely functional, and consists in a modification of its sensibility or contractile powers. Hence spasmodic stricture of the membranous portion of the urethra is a frequent attendant on vesical calculus, the irritation excited by the pressure of the foreign body on the neck of the bladder is propagated forwards; the muscles and tissues of the membranous portion are frequently stimulated to contraction; and at last that form of stricture well known under the name of "spasmodic" is established.

Such a condition exercises no influence on the operative proceeding in lithotomy; but it may offer an obstacle to the introduction of lithotritic instruments, and impede the subsequent manipulations. The sensibility of the urethra and neck of the bladder may be modified, and this morbid change is still more frequent than the one first alluded to. Even in the healthy state the sensibility of the urethra is very capricious, if I may use the expression. The introduction of a gum-elastic bougie will produce a sensation of fainting or sickness in some healthy people, in others rigors, in others again an attack of fever. When stricture exists, the morbid sensibility is greatly increased, and the tendency to sympathetic disturbances aggravated in a proportionate degree. I have in a preceding lecture shown how most severe constitutional disturbance, nervous affections of various kinds, and even death itself, have ensued on the mere passing a catheter into a stricture. It is not, therefore, surprising that the sensibility of parts which are so apt to resent disagreeable impressions when they are in a healthy state, should be frequently and greatly modified by irritation of the bladder.

Experience proves this to be the case. In calculous patients the urethra and neck of the bladder are often affected with such a degree of morbid sensibility, that the introduction of any instrument whatever becomes impossible, and if injudicious attempts be persevered in, the consequences may be disastrous. Such patients are generally of a highly nervous temperament, and the sympathetic disturbance of the system may under such circumstances assume a dangerous character. In other less unfavourable cases the morbid sensibility of the parts does not altogether exclude the use of instruments; but their introduction produces very great pain, excites spasmodic contraction of the neck of the bladder, and gives rise to several secondary effects of a severe character. When this state depends on mere temperament, it may be greatly alleviated by proper treatment; but when it is connected with organic disease of the bladder, it presents, as I shall explain by and by, an almost insurmountable obstacle to the performance of lithotrity.

The same modifications of sensibility and contractility may be observed in the bladder, as a consequence of stone. This you can readily understand, for here the foreign body acts directly on the organ. In nearly all old cases of vesical calculus the bladder has more or less tendency to contract with force on the fluids or solid matter contained within its cavity. This is a natural consequence of the presence of a foreign body, to expel which the bladder is incessantly stimulated. The morbid contractility of the organ is manifested by an urgent and constant desire to void the urine. This may be carried to a very great degree: the bladder will not hold more than a spoonful of urine at a time; and if a couple of ounces of fluid be injected into it, the injection is instantly thrown back with force. When the calculus is large, the bladder, from its contractility, often envelopes the foreign body in a close grasp; and this state of parts is highly unfavourable to any operation. It renders lithotrity impossible, and is scarcely less unfavourable to extraction of the stone by lithotomy.

An opposite condition of the bladder is occasionally met with as an effect of calculus. It occurred in one of the last patients on whom I operated in this hospital. Instead of contracting violently on its contents, the bladder seems to have lost more or less of its expulsive powers, it becomes sluggish, allows the urine to accumulate in considerable quantity, its sensibility is diminished; the organ, in fact, is struck with atony or partial paralysis. This is a very insidious state, for it masks many of the symptoms of stone; and though it may offer no obstacle to lithotrity, it exercises a great influence on the results of the operation, by favouring, on the one hand, retention of urine, and on the other by impeding the free discharge of the detritus from the bladder. To avoid repetition, I shall defer further notice of atony until I come to indications.

The pathological effects of vesical calculus at an early stage have not been accurately determined by post-mortem examination, for the disease is never fatal at the commencement; but the symptoms indicate plainly enough the changes which are going on within; at first they are those of irritation, soon followed by unequivocal signs of chronic inflammation of the parts which have been irritated.

The most common, indeed I might almost say the constant, effect of stone in the bladder, is to excite more or less inflammation of the mucous tissues with which it comes in contact. It is true that some calculous patients suffer little, and that a few have even remained unconscious of the disease under which they laboured, the symptoms being completely latent. But such cases are extremely rare. Stone in the bladder seldom exists for any length of time without producing more or less inflammation of the mucous surface of that organ, an inflammation which may extend either to the other tissues of the bladder, to the neighbouring cellular substance, to the prostate, or upwards to the ureters and kidneys. The inflammation may be either acute or chronic. We might naturally infer that the severe irritation of a rough calculus, grasped, as it often is, by a contractile bladder, while the urine is at the same time highly offensive and irritating, should often produce acute inflammation of the mucous membrane; but this is not the case; the bladder is patient and long-suffering to an astonishing degree, and acute inflammation of this organ rarely sets in, except towards the last stage, when the disease draws to its close, and death is at hand.

Chronic inflammation of the mucous membrane of the bladder may exist in every degree of intensity. I need not dwell on the pathological characters, with which you must be familiar.

The inflamed points present a dark-red colour; and when the disease has continued for a long time the inflamed spots assume a much darker tint, while the membrane itself becomes thickened, pulpy to touch, and softened, tearing easily away from the subjacent tissues. If the complaint continues, and the patient dies, the mucous membrane, especially in the neighbourhood of the neck of the bladder, is found greatly discoloured, of a brown or even blackish tint; and this may occur with or without softening. The symptoms of this chronic inflammation are those of catarrh of the bladder; and it may not only be an effect but a cause of calculus, for the inflammation is a strong predisposing cause of phosphatic deposits. Inflammation of the bladder may present any of the terminations peculiar to inflammation in other parts of the body. Gangrene is very rare, suppuration frequent. The urine of calculous patients, as you are aware, very often contains pus in greater or less quantity. This pus is generally secreted by the inflamed mucous membrane; but pus may also be deposited in the substance of the bladder, either as an infiltration, or under the form of small disseminated abscesses. In a few cases the pus is deposited in the cellular tissue outside the bladder. The loose cellular web between the bladder and the rectum is the most frequent seat of this latter lesion, which commonly ends in infiltration of urine, sloughing, and death, an event the more likely to occur if an operation has been imprudently performed. Ulceration of the mucous coat also occurs as an effect of inflammation from calculus. This lesion is not very rare; still it seldom ensues, except in old cases, and in the last stage of the disease, with rough calculi, when severe inflammation has softened the mucous tissue, on which the stone is pressed by forcible contractions of the bladder. The ulcerations are usually found near the fundus of the bladder, on which the calculus commonly rests. They may proceed so far as to cause perforation of the organ, sometimes followed by the escape of the calculus from the cavity of the bladder, and always by fistulous infiltrations of the most dangerous kind.

Next to inflammation of the mucous membrane, which, I should remark, sometimes extends by continuity to the other constituent parts of the bladder, comes hypertrophy of the muscular tissue: indeed, I might perhaps say that it is of more frequent occurrence, for more or less thickening of the muscular coat is the necessary consequence of the efforts which the bladder is constantly stimulated to make, in order to expel the foreign body or the offensive secretions it contains. This is an important lesion in reference to lithotrity, and presents itself in a variety of degrees. Sometimes a few of the muscular fibres only are developed, at other times we find a number of thickened fibres collected into bundles, and standing out like the carneæ columnæ of the heart, constituting what French writers term, "la vessie à colonnes."

The fleshy columns may, moreover, cross each other in various directions; and this is an unfavourable circumstance, for it may render it very difficult either to detach or seize a small calculus, which gets entangled between the recesses, and escapes the instrument. It likewise favours what is called adhesion of the calculus to the bladder. The stone does not literally adhere, but any projection on its surface may get entangled amongst the net-work of the hypertrophied fibres, and the effects of adherence be thus virtually produced.

In a few cases the hypertrophy seems to have extended from the muscular to the cellular tissue of the bladder; the three coats of the organ, in fact, are thickened; and when to this we add contraction, we can understand how the walls of the bladder sometimes undergo an astonishing degree of thickening. Chopart speaks of more than half an inch; other writers mention hypertrophied bladders the walls of which were more than an inch in thickness.

The hypertrophied condition of the muscular fibres leads to another pathological state, the existence of which exercises great influence on operations for stone. In many cases of hypertrophy, the bladder, instead of being contracted, is dilated; I shall speak of this presently; but however this may be, the fleshy columns of an hypertrophied bladder leave intervals between them, in which the mucous and peritonæal coats remain without support. Now, when the bladder contracts violently on its contents, you can readily understand how the mucous coat may be pushed outwards between the muscular bands, forming pouches, sacs, or cysts, as they have been variously called. This lesion is not of rare occurrence in calculous patients.

A celebrated French lithotomist asserts that he met with thirteen cases of encysted stone in fifty patients on whom he operated. These cysts or sacs are chiefly found near the fundus of the bladder; they are of various shapes and sizes, sometimes single, but oftener multiple. The opening into them may be wide, or narrowed from contraction of the muscular fibres round the neck of the sac. The calculi frequently become engaged in these sacs, and it sometimes happens that the stone lodges in them for a certain period only, being occasionally expelled from their cavities by the contractions of the bladder. This often leads to errors and uncertainty of diagnosis. As many as seven calculi have been found in one of the cysts now spoken of, yet the entrance was barely wide enough to admit a goose-quill. After lithotrity the fragment likewise may become engaged in these recesses, and give rise to a great deal of trouble. A case is recorded in which the operator took six months to free the bladder completely from the detritus.

The sojourn of the fœtid urine in these cysts often excites purulent inflammation of their walls, a most unfavourable complication, as I have explained in a preceding lecture. I then mentioned the name of Mr. Liston, as having noticed the tendency of cysts to favour purulent infection; in fact, these cysts sometimes contain true pus, while the bladder with which they communicate contains only urine; but experience unfortunately teaches us that we cannot determine the existence of this lesion during life with any degree of certainty. M. Civiale informs us that he has often been led to suspect the presence of cysts in the bladder by observing the manner in which the fluid injected into that organ is expelled by it: the fluid does not escape in a regular flow through the catheter, and the last portion passed is often more turbid and offensive than the first.

Besides the projecting and hypertrophied columns of which I have spoken, we sometimes find a different species of folds, produced by the mucous membrane alone, which is relaxed and at the same time engorged, being of a blue or purplish colour. These folds sometimes become encrusted with phosphatic deposits, while from their arrangement they are very liable to be pinched between the blades of the lithotrite; and the same remark applies, though in a less degree, to the hypertrophied columns.

The irritation of a calculus in the bladder sometimes gives rise to the development of tumours about the neck of this organ. These are either of a fungoid character, or resemble polypi; in some rare cases they are firm, or exceedingly hard and cartilaginous. Their most frequent seat is the neck of the bladder, but they have been found to arise from its fundus and other parts. They vary greatly in size and consistency, being sometimes as large as a hen's egg, or even as the closed fist. The calculus sometimes appears to grow into them, while at other times they are found covered with calcareous or phosphatic deposits. They modify the symptoms of stone, and often give rise to a peculiar form of retention of urine, from the tumour being driven against the internal orifice of the urethra. It is unnecessary to mention that they must impede more or less the operation of lithotrity; the friction of the instruments is very apt to inflame them or make them bleed; but I must reserve considerations of this kind for my next lecture. My object is now to make you acquainted with the pathological effects of calculi in the bladder, after which we shall be better able to draw our conclusions as to the comparative applicability of lithotrity and lithotomy.

I have now directed your attention to the principal lesions of the bladder connected with or consequent on stone. The prostate next presents itself for consideration.

Chronic disease of this gland is of very frequent occurrence in calculous patients, though it may likewise exist, in old persons especially, independently of any calculous affection. The irritation to which the neck of the bladder is constantly exposed seems to determine an abnormal degree of nutrition in the gland, and it thus slowly enlarges. In other cases, the tumefaction is, however, connected with chronic inflammation of the tissues of the gland.

The changes in the size, form, and consistency of the gland are very diversified; sometimes the tumefaction is slight, at others considerable. It then projects into the bladder, causes retention of urine, and many other distressing symptoms. The tumour is usually firm, but sometimes soft; in other cases it is of a scirrhous hardness. Any one or all of the lobes may be enlarged. Sometimes the tumefaction is uniform, and the gland acquires very great dimensions, but often the hypertrophy is confined to the middle lobe, which projects in a conical manner into the bladder behind the internal orifice of the urethra, and often attains a large size.

Enlargement of the prostate always exercises more or less influence in the operation of lithotrity. It may impede the introduction of instruments and the seizing the stone, for the internal orifice of the urethra is pushed back, and the fundus of the bladder more or less deepened. When this enlargement exists to any great degree, it contraindicates lithotrity. It is important to distinguish chronic enlargement of the middle lobe from the polypus or firm tumour about the neck of the bladder, of which I have spoken already. This is not always easy. You should chiefly be guided by the anatomical position of the gland, by the manner in which the middle lobe springs, as it were, from the under surface of the neck of the bladder, and by the large basis on which it is supported.

The enlargement of the prostate may be either interstitial—that is to say, simple hypertrophy of the tissues—or it may depend on chronic inflammation of the organ. This latter form, I believe, is one which usually presents itself in calculous patients, and hence two of the effects of inflammation—viz., suppuration and ulceration—are occasionally observed in the prostates of patients labouring under stone in the bladder. Abscess of the prostate is not very uncommon; it may occupy the substance of the gland, or commence in the excreting ducts. The external cellular membrane, may also, in some cases, be the seat of the purulent collection.

The symptoms are often obscure. The abscess itself may open into the urethra, the bladder, the rectum, or the perinæum. It is unnecessary to remind you, that any considerable tumefaction of the prostrate must alter more or less the shape, direction, and calibre of the prostatic portion of the urethra, render catheterism difficult, and impede or render impossible the operation of lithotrity. These points, however, will be fully examined in my next lecture.

That portion of an inflamed or tumefied prostate which projects backwards into the cavity of the bladder, is sometimes the seat of ulceration; but this very seldom takes place, except towards the termination of the disease. The sufferings of the patient from this complication are dreadful, and it exercises a most unfavourable influence on any operation to which we may have recourse.

Atrophy of the prostate gland has sometimes been found in calculous patients; but it is impossible to connect this lesion with stone in the bladder as effect and cause. It is more probably a coincidence depending on some other influence which escapes our detection. The prostatic portion of the urethra is widened in cases of this kind. The calculus often lies close on the neck of the bladder; and if lithotrity be had recourse to, the fragments are very apt to become impacted in the vesical extremity of the urethra.

The only pathological effects of vesical calculus which it remains for us to consider, are those produced on the ureters and kidneys. The ureters are seldom found in a completely healthy state when the bladder has been subject for any length of time to the irritation of a calculus; more or less dilatation of these tubes is the lesion ordinarily discovered, and its degree will depend on the obstacle offered to the free discharge of urine from the bladder, for I do not now include cases in which the ureters themselves may be the seat of calculi. I speak only of the effects of vesical calculus on these parts.

The dilated ureter is often inflamed, though inflammation of the internal membrane may exist without any change in the calibre of the duct. The inflammatory action is usually propagated upwards from the bladder, which is itself in a state of sub-acute inflammation, and the latter often extends to the pelvis of the kidneys, and thence to the substance of these organs. For a more complete description of this complication, I would refer to a memoir on Pyelitis, which I published in the June number this year of the *London Journal of Medicine*. Inflammation of the mucous lining of the ureter or pelvis, is almost always attended by a secretion of pus, which sometimes distends the pelvis to such a degree as to produce complete absorption of the substance of the kidney.

The secreting urinary organs themselves often become implicated during the progress of calculous affections of the bladder, either directly by the upward extension of inflammation along the ureters or by sympathy. These secondary diseases, gentlemen, constitute a most important portion of our subject, for they exercise more influence on the results of lithotrity than even direct lesions of the bladder itself; while, at the same time, they are of so obscure and insidious a nature as to escape, in many cases, the notice of experienced practitioners. In old cases of stone in the bladder, the kidneys are seldom found healthy; and in other cases of shorter standing, they are very apt to become implicated by the disorder which already exists in the bladder.

The lesions of the kidney thus connected with vesical calculus are numerous and of various degrees of intensity. The most ordinary are chronic degeneration or inflammation of the substance of the organ. In the early stages, the glandular structure becomes injected, more soft and vascular than is natural. As the disease advances, we find the usual effects of inflammation; pus is secreted at an early period, and often in a rapid manner; numerous small abscesses are found under the peritonæal coat, or desseminated throughout the substance of the kidney; in rarer cases, the pus is collected into one large abscess.

The kidney sometimes presents an appearance of hypertrophy. It is then uniformly enlarged, and is of firm consistence, but sometimes soft. In more rare cases we meet with atrophy of the kidney, or the glandular structure has entirely disappeared, and the organ is reduced to a mere cyst. This wasting, however, generally arises from the presence of a calculus in the kidney, or from the pressure of purulent matter confined in the pelvis. The body of the celebrated anatomist, Malpighi, presented an example of atrophy of the kidney.

In addition to these lesions, which can be clearly traced to the influence of the vesicle calculus, other morbid states have been met with in calculous subjects. Thus the kidney has been found reduced to a pulpy mass, resembling a spleen in its composition; it is sometimes the seat of tumours of various kinds, and often contains hydatid cysts, occupying more or less of the substance of the organ. Such kinds of lesion may not perhaps depend essentially on the presence of stone in the bladder, for they are often found in the bodies of persons who never suffered from that complaint.

As I have already observed to you, the symptoms of renal disease connected with or supervening on stone in the bladder are often of a very obscure kind, and apt to escape detection; yet you must pay the closest attention to the condition of the kidneys in every patient whom you may have to treat for stone, whether by Lithotomy or by lithotrity. The local signs of disease of the kidney are often extremely vague; the general symptoms may be readily referred to constitutional disorder from the calculous affection of the bladder, and not to the kidney itself; yet if you operate, the patient will almost certainly die, and the cause of the fatal result be attributable to the operator.

LECTURE VII.

INDICATIONS AND CONTRA-INDICATIONS OF LITHOTRITY.

GENTLEMEN,—Having, in my last lecture, explained to you the pathological effects of vesical calculi, and thus prepared you for the consideration of the manner in which disease of the urinary organs may influence operations on them, I now turn to the most important part of my subject—viz., the indications and contra-indications of lithotrity. Here, gentlemen, I would solicit your undivided attention, for the various points which we shall have to consider not only require to be examined with the greatest care, but are of the most important kind, the success of lithotrity mainly depending on its being applied in a proper manner—that is to say, on a strict observance of the indications which experience has established. You may possess the most perfect instruments, you may operate with the greatest dexterity and skill, but your talent will be thrown away and your hopes disappointed, unless you know how to distinguish those cases to which lithotrity is applicable, from the numerous other cases where lithotomy should be preferred, or where an operation of any kind is inadmissible. Lithotrity, I cannot too often repeat, can only be judged by its results in those cases for which it is destined, and they who venture to push it beyond its legitimate bounds will reap nothing but disappointment.

A number of calculous patients present themselves to us. Is lithotrity applicable to them all, without distinction? Most assuredly not. On what, then, are the distinctions to be founded? On what principles are we to accept some patients while we reject others? What, in short, are the indications and contra-indications of the operation? These questions involve a great variety of details, and have given rise to much diversity of opinion, even amongst our best surgeons. They can only be determined by experience; yet, strange to say, any obscurity which still hangs round them arises from the fact, that many leading surgeons would resolve them according to their personal experience. This may seem a paradox, yet it is true. The fact is, that most surgeons perform lithotomy sufficiently well, yet when they come to lithotrity, judgment and skill seem to have abandoned them. The dexterous lithotomist suddenly becomes a very indifferent lithotritist. An eminent hospital surgeon, who cut eighteen patients without losing a single one, could never perform lithotrity in a respectable manner; and the results of M. Velpeau's practice were of a deplorable kind. It is, then, not astonishing that when certain surgeons or writers speak of lithotrity from their own experience, they should either condemn it or confine it to a very limited number of cases indeed.

If we take up the question of the applicability of lithotrity in the abstract, and ask to how many cases out of a given number it is applicable, the answer is difficult. The records of surgical science on this interesting point are excessively meagre. The noise of successful cases seems to drown every other. Very few operators have published an account of their practice with sufficient details; and this reproach applies to lithotomists almost as universally as to lithotritists. M. Velpeau asserts that lithotrity is applicable in about a quarter only of the cases of calculous patients which may come before the surgeon. M. Amussat, even so far back as 1835, declared that he found lithotrity applicable to three-fourths of the calculous cases in his extensive practice. Sir Philip Crampton—who forcibly insists on the expediency of operators publishing the whole results and details of their practice, and who has set an example which so few follow—Sir Philip Crampton had occasion to treat thirty-five calculous patients within a period of eleven years, and of these, two were considered unfit for any operation, twenty-four were lithotritized, and nine were subjected to lithotomy. This gives nearly the same proportion as that of M. Amussat—viz., three-fourths of calculous cases to which lithotrity was applicable. To M. Civiale we must turn for anything like satisfactory information on this, as on almost every other point connected with lithotrity. M. Civiale has kept accurate notes of every case treated by him during the last six-and-twenty years; nay, more, he has published short notes of every one of these cases, and thus furnished elements for the solution of many questions which a more limited practice could not have embraced.

Between the years 1824 and 1836, M. Civiale saw 506 calculous patients. Of these, he rejected 199 as unsuited to the operation of lithotrity, and operated on the remaining 307. Hence about two cases in every five were rejected during this period. From 1836 to 1845, M. Civiale visited 332 calculous patients: 91 were rejected, and 241 operated on; or two cases in every seven were rejected during this period; or, taking both periods together, we have 290 cases out of 838 rejected, being a proportion of about one-third. This latter is perhaps as near the true proportion as we can get; but you must remember that it applies to adults only. If any considerable number of children had been comprised in M. Civiale's 838 cases, the proportions would have undergone very great modifications. The best calculations show that about one-third of all calculous patients are children; and if these latter be given over to lithotomy, then the proportions are reversed, and become about two-thirds for lithotomy, and one-third for lithotrity. This, I believe, is as close an approximation to the truth as we can arrive at now; it gives to lithotrity about one-third of all the cases of vesical calculus which occur; and two-thirds of the cases, if we confine ourselves to adults.

General reasoning, however, of this kind, furnishes no information of any practical value to the surgeon. We must descend from the mass of facts to particulars, and endeavour to ascertain on what principles one-third or two-thirds of the cases of vesical calculus which may present themselves to us should be excluded from lithotrity. In order to render these principles more clear to you, and more easily understood, I must again call to mind in what the operation of lithotrity consists. To perform this operation in a safe and proper manner, and to derive from it the results which it is capable of yielding, certain conditions are requisite. Thus, we must be able to introduce our instruments into the bladder. Having introduced them, we must be able to seize and fix the calculus. Having fixed the stone, we must be able to break it up into small fragments; and the fragments, thus cominuted, must have a ready exit from the bladder. Finally, these various steps of the operation must be performed without exciting any serious disorder in the urinary organs, without aggravating in a dangerous way any disorder which may already exist, or without inflicting any important injury on the general health of the patient. To perform lithotrity in a successful manner, the different conditions which I have just enumerated must be strictly fulfilled; and we have therefore only to ascertain what circumstances prevent the fulfilment of these conditions, in order to discover the indications and contra-indications of lithotrity. Whenever, in a given case, you cannot entertain a reasonable hope of attaining the conditions which are essentially necessary to a successful performance of the operation, the latter is contra-indicated.

On the contra-indications arising from any obstacle to the introduction of lithotritic instruments into the bladder, I shall now say nothing, having already noticed them under the head of obstacles. We must suppose that the urethra is sufficiently free to allow the passage of the lithotrite. The principal points on which the applicability or non-applicability of lithotrity, in any given case, depends, are, first, the nature of the calculus; second, the condition of the urinary organs; and, third, the health of the patient, with some other circumstances of a general nature, as age, &c.

Let us take up these several points in their order; and first, for the nature of the calculus. The choice of the operation to be selected will be influenced by the number of calculi in the bladder, their size, their form, their density, and position. All surgeons are agreed that a single calculus is more suited to lithotrity than several calculi; but it is impossible to lay down any rule from number alone. Generally speaking, the existence of more than two calculi may be regarded as an unfavourable circumstance; but M. Civiale has operated, with success, in a case where the bladder contained forty calculi; and M. Leroy d'Etiolles in cases where fifteen, twenty, or thirty calculi were present. These cases prove that lithotrity is not contra-indicated by the mere number of calculi, taken in the abstract; what you are to be guided by, is the time which may be required for crushing and extracting them, because there you bring into account one of the conditions already enumerated—viz., that of not inflicting any injury on the urinary organs or general health of your patient. Hence the number of calculi is no great obstacle, provided they be at the same time small and soft; provided you can crush each at once, without being forced to prolong manipulations which might fatigue and irritate the bladder. When small, and of a friable nature, the calculi, however numerous, may be regarded rather in the light of fragments. On the other hand, should any great sensibility of the neck of the bladder or of the organ itself co-exist with a number of calculi, it will be more prudent to reject lithotrity.

The size of the calculus is an important element to be taken into account. Formerly our notions as to the size of the stone were extremely vague; but since the discovery of lithotrity, surgeons have arrived at much greater accuracy, and the size of a calculus can now be generally ascertained in a manner sufficient for practical purposes. A calculus may be regarded as of moderate size when it does not exceed an inch and a half in diameter. Here the operation of lithotrity, so far as the size of the calculus is concerned, is perfectly applicable. Even when the stone measures from an inch and a half to two inches and a half, it may be crushed, provided it be not very hard, and the urinary organs be free from disease. Mr. Massey, of Nottingham, has recently related two very instructive cases of this kind. He does not mention the size of the calculi, but they were evidently large; the aggregate weight of the detritus is estimated at two ounces and a half; they were likewise hard, being composed of lithic acid and lithate of ammonia; yet they were removed by crushing and percussion without any accident. Still it must not be forgotten that the operation for the destruction of a stone from two inches to two inches and a half in diameter, and moderately hard, is often difficult, and followed by unfavourable symptoms.

The late Mr. Key, who at one time was no admirer of lithotrity, says: "I know of no limit to the size of a calculus removable by lithotrity, but the power of the lithotrite. If a powerful instrument can be brought to embrace it, and the bladder be healthy, the operation may, as far as my experience goes, be attempted, with propriety." The opinion of Mr. Key requires some qualification; very great size is no contra-indication, provided the calculus be very friable, as phosphatic deposits usually are, and provided the bladder is not closely contracted over the surface of the foreign body. If, however, the stone be large, and at the same time dense, I would unhesitatingly say that lithotomy should be preferred to lithotrity, even admitting, with Mr. Key, that the urinary organs are healthy. Remember what I said about the necessity of our being able to operate without the danger of over-exciting the bladder. A large dense stone cannot be reduced to fragments either by percussion or crushing without a considerable number of operations. As the calculus occupies a great part of the cavity of the bladder, it is not easily seized; the manipulation of crushing must be more or less painful, and is always long; the danger of exciting inflammation of the bladder or kidneys is proportioned to the number and length of the operations; such danger is always imminent, the quantity of detritus is likewise great, and retention of the fragments after fatiguing operations may give rise to serious constitutional disturbance. From these and other reasons, I would lay it down as a rule that lithotrity is contra-indicated in all cases where the calculus is at the same time large and dense. In cases where the foreign body is moderately hard, and does not exceed two inches and a half in diameter, other circumstances being favourable, the operation is not altogether contra-indicated; but if had recourse to, the greatest caution is required, and the operator must be prepared to abandon any further attempt at crushing as soon as unfavourable symptoms arise. In these and other cases, which occupy what I would call neutral ground, or the limits between the applicability and non-applicability of the operation, much will depend on the skill and experience of the operator. One surgeon will succeed where another fails; and unless the practitioner has full confidence in his own resources, it will perhaps be more prudent for him to follow the beaten track, and have recourse to lithotomy in the doubtful cases to which I now allude.

The density of the calculus is next to be noticed. The mulberry or oxalate-of-lime calculus is the hardest variety, and often presents such a degree of density, that no force will produce any effect on it. Professor Velpeau mentions a case of mulberry calculus, where 2000 strokes of the percussor were had recourse to without exercising any perceptible influence on the foreign body. Calculi of this kind are evidently beyond the domain of lithotrity; and other cases of hard calculi are to be rejected whenever we have reason to suspect that the hardness of the stone, whether alone or joined to other circumstances, may exercise an unfavourable influence over the result of the operation.

It is clear that a very hard calculus cannot be disintegrated without a considerable number of operations, and the possible consequences of such repeated manœuvrings in the bladder are sufficient to make us incline to the side of lithotomy.

On the indications connected with the form and position of calculi, little need be said. The stone must be seized and fixed before it can be crushed, and there may be some difficulty in grasping a very flat calculus; but with our curved instruments this difficulty is, I believe, very rarely insurmountable. The position of the stone may be considered when I treat of encysted calculi.

The condition of the urinary organs, gentlemen, is the next point to be examined in reference to the indications of lithotrity. It is almost unnecessary for me to remind you that a healthy state of the urinary organs is the most favourable condition that can present itself in connexion with lithotrity, while, on the other hand, any serious organic disease of the bladder or its appendages contra-indicates the operation. Still, few calculus patients are altogether free from some disorder of the urinary apparatus, and many affections of the bladder merely influence the results of lithotrity without absolutely contra-indicating it. Hence it is a matter of great importance (although much easier in theory than in practice) to ascertain what morbid conditions of the genito-urinary system are incompatible with the safe and successful application of lithotrity.

The state of the prostate first demands our attention, for it may influence the simple introduction of the instruments, as well as the operation and its results. In my last lecture I described to you the different morbid conditions of the prostate which have been found in connexion with vesical calculi; one or both of the lateral lobes may be increased in size, the middle lobe also may be enlarged, and form a more or less prominent tumour, which projects backwards into the cavity of the bladder. The substance of the gland may be inflamed, its vesical surface may be the seat of ulceration, or, finally, abscesses may exist in the body of the prostate itself.

Partial or total enlargement of the prostate must necessarily cause some deviation of the prostatic portion of the urethra, and thus create a greater or less obstacle to the introduction of instruments. When the enlargement is moderate, you will generally succeed in overcoming the obstacle by depressing the handle of the instrument a little when its point arrives near the pubic arch; and a greater degree of enlargement will require a corresponding amount of depression. The curve of the instrument is thus carried over the enlarged gland without any considerable difficulty, but great care and gentleness are indispensable; you must avoid dragging the parts too much, which would excite severe pain; and you must also avoid injuring or perhaps lacerating the superior surface of the prostatic portion of the canal, which might occur if the handle of the instrument be depressed too low.

It is easy to understand how any considerable enlargement of the prostate—particularly of its middle lobe—must diminish the cavity of the bladder, and thus impede the free play of instruments within this organ. The tumefaction of the middle lobe, which projects backwards, deepens the floor of the bladder, and the calculus is thus often concealed in a kind of artificial cavity; the antero-posterior diameter of the bladder is also more or less altered and prolonged backwards. These circumstances are calculated to impede the manipulation after the introduction of the lithotrite. The rotation of the open blades is circumscribed, and the seizing the calculus is thus rendered more difficult. Indeed, when the middle lobe of the prostate is greatly enlarged, it may be impossible to grasp the stone without executing a movement of complete rotation, and turning the concave surface of the instrument against the gland. The same disposition of parts which prevents you from seizing the calculus with facility must also impede the ready discharge of fragments from the bladder; and this is an objection of great importance.

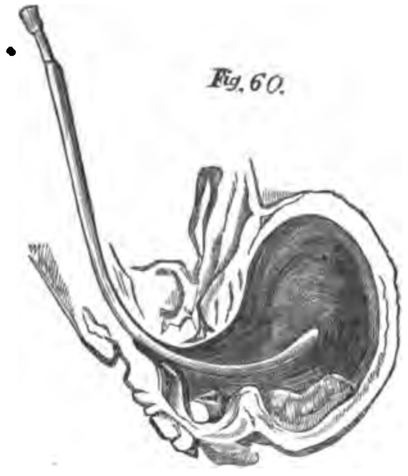


Fig. 60.—A calculus in the prostatic portion of the urethra, and a second one in the depression behind the prostate. The point of the sound passes over both.

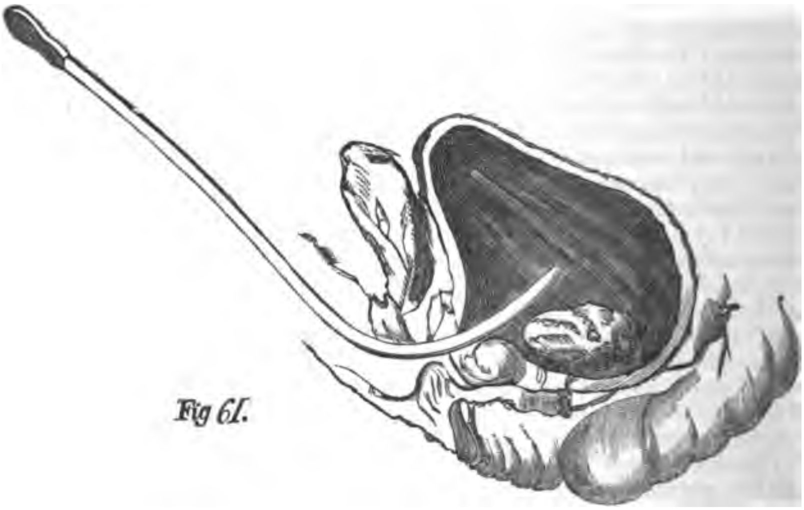


Fig. 61.—Effect of enlargement of the prostate gland, throwing up the point of the sound.

Enlargement of the prostate gland is an unfavourable circumstance for the performance of lithotrity, but it is no absolute contra-indication, as some writers assert, nor, on the other hand, is it to be regarded with indifference. The main points to be ascertained, before deciding on the propriety of operating, are the nature and extent of the obstacles which the enlargement of the gland may oppose. These can only be determined by a very careful examination of the patient with the sound. By introducing the finger into the rectum, &c., you must obtain as correct notions as possible relative to the size of the gland; you must ascertain whether the whole or a part only of the prostate, be enlarged, and if a part, whether it be the lateral or middle lobe; you must observe how the urethra has become altered, whether to the right, or left, or upwards. You must endeavor to find out, if possible, how far the middle lobe of the prostate projects backwards into the cavity of the bladder, and what is the form or extent of the pouch in the floor of the bladder, on which the calculus rests. All this requires dexterity and judgment, but you must obtain such preliminary knowledge, unless you prefer going to work in the dark; and it has been clearly established, that the want of success, in many cases of lithotrity, mainly depends on the operator having neglected to ascertain beforehand certain facts, on an acquaintance with which the ultimate success of the operation intimately depends. Let us now suppose that on examination you have discovered some enlargement of the prostate, but not to any considerable extent. Here you may proceed to operate, provided the stone be of moderate size, and the organs not very sensitive. On the other hand, when the increased size of the prostate is considerable, and the bladder contains several calculi or a single large one, lithotrity is contra-indicated.

Any serious disorder of the urinary organs coexisting with enlargement of the prostate, should, in my opinion, be also regarded as a contra-indication. Thus the neck of the bladder is often very irritable in cases of the kind now under consideration; there may be chronic catarrh of the bladder, or that organ may be in a state of atony, &c.

Lithotrity has been successfully employed in spite of these complications; but whenever they exist in conjunction with enlargement of the prostate, I should, for my part, prefer having recourse to lithotomy.

Chronic inflammation, or catarrh of the bladder, is of very frequent occurrence in calculous patients, and it is therefore of importance to examine how far such a condition may influence our choice of the operation to be selected.

If we were to reason *à priori*, we might readily conclude that the use of lithotritic instruments in a bladder already inflamed must inevitably aggravate the inflammation and give rise to serious accidents; and hence that catarrh of the bladder is a positive contra-indication of lithotrity. During the early period of his practice, even M. Civiale himself was influenced by this preconceived notion, and rejected all cases in which catarrh of the bladder existed to any extent. Experience soon proved that his fears were unfounded. Simple and mild catarrh of the bladder, instead of being aggravated by lithotrity, is almost always alleviated by comminution of the calculus—I allude, of course, to that form of catarrh which depends on the presence of a foreign body in the bladder.

This fact, gentlemen, has been fully established by experience in hundreds of cases, and I do not think it necessary to dwell on it. Indeed, were the fact not so, lithotrity must have been abandoned long ago, for few calculous patients are entirely free from vesical catarrh under some form or another.

It is only where the chronic inflammation of the bladder has been of long standing, or is complicated with other lesions, that it becomes necessary to reflect whether the state of the vesical mucous membrane be such as will admit of our employing instruments without danger.

Whenever catarrh of the bladder is complicated with any serious disease of the neck or body of the organ, it will be prudent to abstain from lithotrity. The necessary manipulations might, in some cases, aggravate the chronic inflammation, and rapidly compromise the life of the patient. I would also abstain from the use of lithotrity in cases where catarrh of the bladder is accompanied by any well-marked signs of irritation, such as pain and difficulty of micturition, a frequent desire to evacuate the bladder, &c.

Purulent catarrh of the bladder is, according to my experience, a very positive contra-indication to lithotrity. It is not so much that the presence of pus in the urine denotes an advanced degree of inflammation in the mucous membrane, but from the fact that purulent secretion from any portion of the urinary system becomes a determining cause of purulent infection under the influence of lithotrity. The pus contained in the urine may be derived not only from the inflamed mucous lining of the bladder, but from the surface of a cyst, from the ureters, from the pelvis of the kidney, or from the kidneys themselves; in all these latter cases, purulent infection is liable to supervene, and this complication is almost inevitably fatal. When catarrh of the bladder exists, you must, therefore, take into account its nature and its degree. If not very severe, and if unaccompanied by any serious organic lesion, it does not contra-indicate lithotrity. Still, experience teaches us that certain precautions must be observed to prevent the chance of failure or the occurrence of secondary accidents. The calculus must be a small one, unless it be phosphatic, which species, as I told you before, is rapidly crushed. The operations or sittings, as they are technically called, must be short, and great care must be taken to relieve the bladder of detritus by frequent injections of tepid water. The principle we have to look to, in short, is to avoid anything which may aggravate beyond measure the irritation which already exists; and if this principle be adhered to, the catarrh will gradually subside with the expulsion of the fragments, instead of being increased by the operation.

Another condition of the bladder which frequently exists in old or severe cases of stone, and which contra-indicates lithotrity, is hypertrophy of the organ, with diminution of its cavity, and excessive irritability. Here let me repeat what I said relative to one of the conditions essential for successful lithotrity, and you will see at once why the state of the bladder just mentioned is a contra-indication: "The play of the instruments in the bladder must be sufficiently free to allow of your crushing the stone without inflicting any injury on the walls of the bladder, or irritating that organ in any dangerous degree." Now this condition evidently cannot be attained whenever the walls of the bladder are hypertrophied so as to give great force to their contractions, and so irritable that they contract on the slightest stimulus, firmly grasping the stone, and resisting the introduction of a few ounces of fluid. It were manifest folly to attempt an operation under circumstances which are diametrically opposed to it. The existence of a certain space between the walls of the bladder and the surface of the calculus, is necessary for the safe performance of lithotrity. This space is filled with fluid to keep the walls of the bladder permanently out of the way of the instrument, and prevent any injury from friction. When the hypertrophied bladder closely grasps the stone, as the French say, like a "night-cap," and is at the same time irritable, no space can be obtained, no fluid is retained in the bladder; if you operate, you must do it without the protection of a fluid medium, and no prudent surgeon would undertake the risk of such a proceeding.

Hypertrophy of the bladder is often accompanied by abnormal development of the muscular fibres at certain points, which stand out in bundles, like the fleshy columns of the heart, giving the bladder the appearance denominated *vessie à colonnes*. Although this state may present some obstacle to lithotrity, it is not a positive contra-indication;—bnt it will be more convenient to examine the lesion in connexion with cysts or sacs in the bladder. These and the remaining points I shall take up in my next lecture, for I perceive that the important subject of indications cannot be disposed of, like a soft stone, at a single sitting.

LECTURE VIII.

Gentlemen.—The condition of the bladder naturally exercises a very great influence over the results of lithotrity. It requires no reasoning to prove to you that there must be an immense difference between breaking up a calculus in a healthy bladder and in one whose textures and sensibility have been altered by disease. At the conclusion of my last lecture, we had arrived at a certain condition of the bladder, the muscular fibres of which are abnormally developed. The hypertrophy of the muscular tissue is sometimes general; in other cases it is confined to particular fibres, which appear to be collected together in bundles, and form fleshy columns somewhat similar to those in the heart This constitutes the state which French writers have called "vessie à colonnes."

Fig. 62.

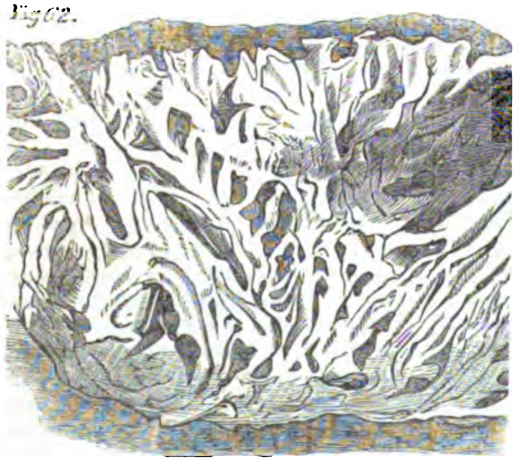


Fig. 62.—Hypertrophy of the muscular tissue of a portion of the bladder.

Fig. 63.

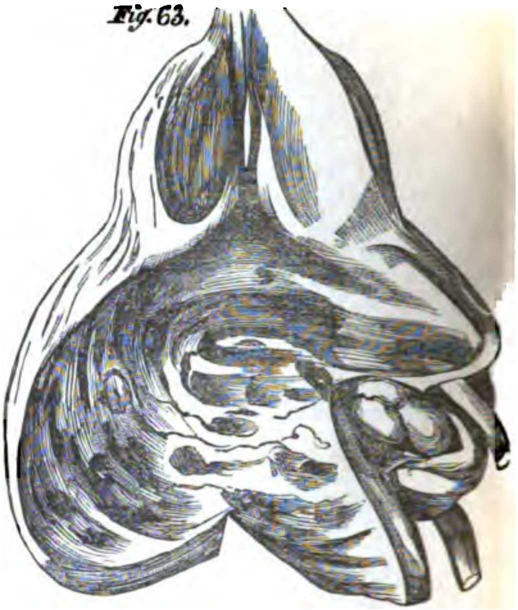


Fig. 63—Hypertrophied and sacculated bladder; one of the cysts to the right contains three calculi.

The frequent and powerful contractions of the bladder often give rise to another morbid condition connected with the one I have just mentioned, and which may be considered with it. In the intervals of the muscular bundles, the mucous wall of the bladder is weak and unsupported; it may yield during the contractions of the bladder, and form pouches of various kinds, which have been denominated cysts or sacs. A bladder in this condition is said to be "sacculated," and when the calculus is enclosed in one of these sacs, we term the case one of encysted stone.

Fig. 64

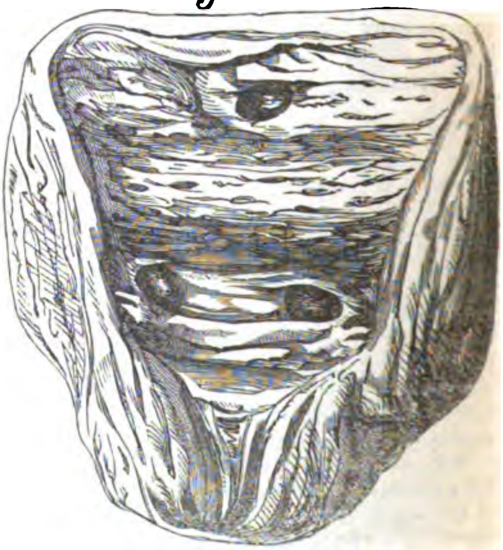


Fig. 64 represents a bladder with three cysts.*

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* I am indebted to the kindness of my colleague, Mr. Lane, for this drawing; the preparation is in his museum.

Fig.65.

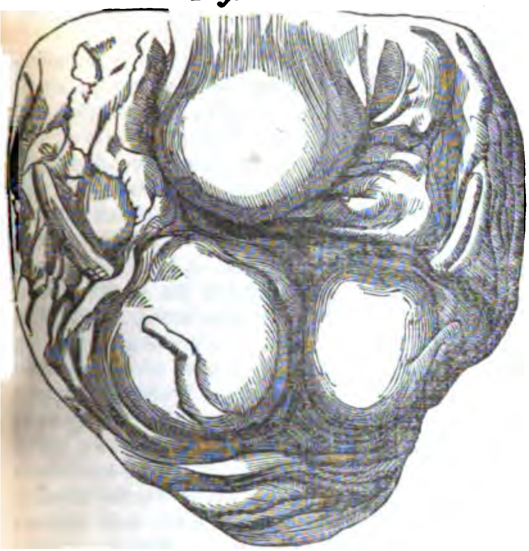

FIG. 65.—Back view of the bladder with three cysts.

Let us now examine in what manner a columnar state of the bladder and encysted calculus affect the indications of lithotrity. The majority of surgeons are of opinion that lithotrity should be rejected for all cases of hypertrophy of the bladder with irregular development of the muscular fibres. It has been alleged that the projecting and irregular bundles might be readily pinched between the blades of the instrument, and that the fragments become entangled in the fibrous network, thus rendering their removal from the bladder difficult, and increasing the danger of relapse. For my own part, I should be inclined to adopt the opinion of M. Blandin, and many other eminent surgeons, and prefer lithotomy in cases of stone complicated with columnar hypertrophy of the bladder; but I must at the same time inform you that the extensive experience of M. Civiale has led him to a different conclusion. According to him this condition of the bladder does not contra-indicate lithotrity, but should only render us more cautious while endeavouring to seize the stone or cominute the fragments. It is a very common state in calculous patients; and this we are prepared to admit, on considering how often powerful contractions of the bladder are excited by the presence of a foreign body. M. Civiale has operated on many patients affected with columnar hypertrophy of the bladder, and the cases have terminated favourably.

The sacculated condition of the bladder is a much more unfavourable circumstance. These sacs or cysts usually occupy the fundus of the organ, but they may exist at any point. They are often single, and of considerable size; in other cases, they are small and numerous; the orifice of the sac may be wide, or it may be contracted; the urine often stagnates in these cysts, becomes fœtid, and gives rise to purulent inflammation of their walls, or to the deposit of calculous matter. But the chief point which concerns the operator, is to determine whether or not the foreign body be enclosed in the cyst; that is to say, whether the calculus be really encysted or not. Encysted calculus, gentlemen, is a positive contra-indication of lithotrity. It were useless, to say nothing else, to seek in the bladder a foreign body which you cannot seize. Lithotomy is equally inapplicable to such unfortunate cases; attempts have often been made to afford relief by the knife and by crushing instruments, but the results have not been such as should encourage a prudent surgeon to repeat experiments that almost inevitably hasten death. There is only one case in which any attempt at lithotrity appears to be at all justifiable. In some rare instances, the abnormal position of the calculus is not permanent. The orifice of the sac is wide, and the stone small. Here the foreign body at one time remains within the sac, and at another may be detected free in the cavity of the bladder, having escaped from its place of concealment. The stone, in fact, then ceases to be encysted, and lithotrity ceases to be inapplicable. Some surgeons recommend to us at all events to endeavour to remove that portion of the calculus which may project into the bladder beyond the neck of the sac. This has been done; but the relief is very partial, and the risk great. I would advse you not to meddle in any way with an encysted calculus; the sufferings of the patient are often moderate, and life may be prolonged for a considerable time if you abstain from operating.

Tumours of various kinds are occasionally met with in the bladder of calculous patients. True fibrous cancer, originating in the tissues of the organ, is, according to my own experience, excessively rare; I have never yet met with an example of the kind. Simple polypous tumour may also present itself; this form is likewise rare. Dr. Baillie says that he has seen only one case of polypus growing from the internal surface of the bladder. The growth most commonly met with, is the one known as medullary fungus, or hæmatodes, the nature and appearances of which I need not describe to you. These tumours usually occupy the neck of the bladder, but they may grow from other parts; they are sometimes covered

Fig66.

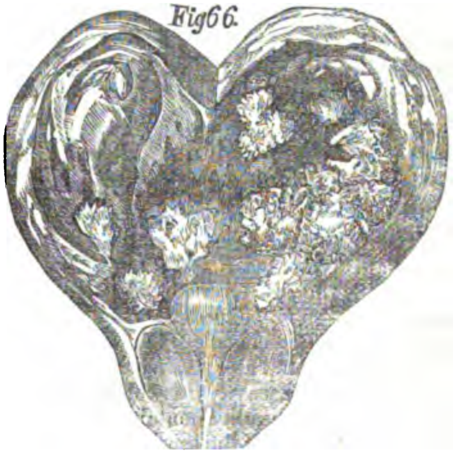

FIG. 66.—Fungoid tumours of the bladder, with hypertrophy of the prostate, especially of its middle lobe.

with calcareous incrustations, and sometimes the calculus itself seems to grow into their interstices.

The diagnosis of fungous tumours of the bladder is not easily made at an early period; and even when the surgeon has succeeded in determining the existence of such a growth, he finds still great difficulty in obtaining any precise knowledge of its seat, form, size, or mode of attachment to the bladder.

Lithotrity is, in my opinion, contra-indicated in all cases where stone in the bladder is complicated with the growth of a fungoid tumour from the surface of that organ. Nearly every surgeon entertains the same view. Still I must not neglect informing you that M. Civiale does not regard the presence of tumours in the bladder as absolutely contra-indicating lithotrity; and on going over the list of notes on his cases, I find no less than eleven in which it is stated that the calculous affection was complicated with tumours or fungoid growths from the bladder, yet the cases terminated favourably. M. Civiale sometimes extirpates the growth before he begins the operation; sometimes crushes the stone in the first instance, the size of the morbid growth and various other circumstances, determining the mode of proceeding; but I shall not enter into any particulars, for I am persuaded that the most prudent course for you to pursue, in the cases now alluded to, is to abstain from lithotrity altogether. M. Civiale does not seem to me to have distinguished with sufficient care malignant from non-malignant tumours; and it would require so much tact, so great experience, in short, so many qualities, to complete the operation of lithotrity, under the unfavourable circumstances attending fungoid disease of the bladder, that I feel no hesitation in saying to you—Abstain. This exclusion does not apply to cases of small polypous tumours, if the bladder be otherwise healthy, and the calculus small, and only moderately hard. The difficulty is to distinguish the case.

Paralysis of the bladder has been mentioned by nearly all writers as a condition which renders lithotrity inapplicable. Here some explanation is necessary. True paralysis of the bladder is a positive contra-indication; it generally denotes some serious disease in other parts of the body; it favours the retention of detritus; and, what is worse, is attended (if overlooked) by retention of urine, which may give rise to fatal consequences. But the paralysis of the bladder which occurs in calculous patients is of a different kind: in this form, the muscular fibres are rather weakened or indisposed to act, than virtually paralyzed. The organ itself is almost always enlarged in size, and its walls are thinner than natural, while its mucous membrane is the seat of a slow and very insidious inflammation. The condition of the bladder now alluded to does not influence the manual part of the operation; on the contrary, it is rendered more easy, for the cavity in which you have to work is large, and readily contains a considerable quantity of fluid; while the sensibility is diminished and the patient's sufferings are quite insignificant. But if the operation be easy, its results are to be apprehended, and it is in connexion with these that the indications are to be considered.

The atonic state of the bladder, which so often complicates stone, had not been well described until the subject was taken up by M. Civiale, and I shall therefore not hesitate to avail myself of the information contained in his most recent works. Paralysis of the bladder, in calculous patients, varies much in degree, from slight loss of power to complete annihilation of the contractile force. In the milder forms the patient is able to expel nearly all the fluid contained in his bladder, and the atonic condition does not become manifest until the last portion of the urine is about to be expelled. The next stage is more serious. The bladder is here very sluggish, and allows a great quantity of urine to accumulate before it begins to contract. The urine, indeed, often flows away from mere regurgitation; it is fœtid, and some degree of vesical catarrh usually exists, accompanied by irregular attacks of fever and disturbance of the digestive functions. Finally, in the most severe degree, the bladder is completely paralyzed, the powers of feeling and contracting being lost altogether.

Calculous atony of the bladder, gentlemen, (if I may be allowed to employ a new term,) giving rise to retention of urine, should be carefully distinguished from those causes of retention connected with spasmodic contraction near the neck of the bladder, enlargement of the prostate, or other mechanical obstacles to the discharge of urine. The principal signs of this condition are to be derived by observing the manner in which fluid is expelled from the bladder, either naturally or with the assistance of the catheter. The patient seldom feels that pressing desire to pass urine which almost constantly exists in those affected with stone; the discharge of urine is slow and imperfect, and we ascertain, at the same time, by examination, that this does not depend on any obstacle in the urethra or about the neck of the bladder. If you desire the patient to pass urine before you, you will find that the urine towards the end comes away drop by drop only, and that the bladder is never completely emptied. The fluid evacuated is often of a deep yellow colour, and of fœtid odour. The general signs of calculus are slight, and the patient complains of little inconvenience, yet his constitution is slowly undermined. On passing the catheter, you will find that the cavity of the bladder is large, and contains a considerable quantity of fluid, but the velocity of the stream through the instrument gradually diminishes, because the bladder does not contract in proportion as it becomes emptied. The increased capacity and diminished sensibility of the bladder are two conditions evidently calculated to facilitate the manual part of the operation, but its results, under such circumstances, are always to be apprehended. The patient continues in an apparently satisfactory state for some time, after which he experiences a desire to pass his urine, but is unable to satisfy it. The desire is not extremely urgent, and the early symptoms connected with the retention of urine may be, and often have been, attributed to the operation. If these symptoms be neglected, and the condition of the bladder overlooked, serious accidents may supervene in a very rapid manner. The latent inflammation of the bladder, on which this form of paralysis depends, quickly passes into an acute or nearly acute stage; the patient has irregular attacks of fever, with general uneasiness, or may fall into a typhoid state, which soon terminates fatally.

Atony of the bladder, as I have said, is not an absolute contra-indication of lithotrity, although many surgeons prefer lithotomy in such cases, under the idea that the cutting operation is better calculated to revive the contractility of the bladder. The following are the rules laid down by M. Civiale:—In all cases of atony, and whenever the bladder is unable to empty itself entirely, the operation of lithotrity should not be commenced, until, by preliminary treatment, as repeated injections, tonics, &c., the condition of the bladder has been greatly improved; until the urine becomes clear, has lost its fœtid odour, and is almost entirely discharged by the natural efforts. If this improvement can be obtained, the case is brought within the domain of lithotrity; but the operator must proceed with the utmost caution, and watch his patient most narrowly, for the absence of sensibility in the bladder may throw him off his guard or lead him astray. The operations must be very short, and several injections must be thrown in after each, to promote the discharge of the detritus. Above all, retention of urine must be guarded against, and the catheter frequently introduced, to prevent any distension of the bladder. Retention of urine and retention of the detritus are the two accidents most likely to occur from atony of the bladder; and if these can be avoided, the case will do well; but if, in spite of our care, any serious symptoms should set in, lithotrity must be abandoned, and the patient cut without delay.

But it happens much more frequently that the bladder of calculous patients is in a condition directly opposite to the one I have just noticed. The constant irritation kept up by the foreign body increases the sensibility of the urethra, of the neck of the bladder, or of the bladder itself, and this often passes into a morbid state, which gives rise to very distressing symptoms. The increased or morbid sensibility of the parts may or may not be accompanied by increased contractility of the bladder. In the former case, as you can readily conceive, the application of lithotrity becomes still more difficult. The chief point which you have to consider in all cases of increased sensibility of the urinary apparatus, is, whether this state be simply nervous, or whether, as often occurs, it be connected with some organic disease of the parts. Nervous irritability will frequently be under the control of treatment, and may be alleviated, if not entirely removed, by the preliminary measures which I have already pointed out. When this object has been attained, lithotrity becomes indicated, and should be performed; but you must bear in mind the condition of the parts, and never subject the bladder to long or rough manipulations; hence I should say that lithotrity is contra-indicated, even when the irritable condition of the parts has been removed, if the calculus be large and hard—in a word, if any circumstances exist which are calculated to render the operations prolonged, or impede the rapid evacuation of the detritus.

When the increased sensibility of the bladder co-exists with or depends on organic disease, lithotrity is contra-indicated. The operation might, perhaps, be attempted without much danger in cases where the stone is small and soft; but there is always risk of aggravating the organic disease from the morbid sensibility of the parts, and the most prudent course, I believe, will be to abstain from lithotrity altogether. The same cause which produced increased sensibility of the urinary apparatus, often increases, at the same time, the tendency of the bladder to contract, and this organ, moreover, may be in a state of hypertrophy. The union of these three states—viz., increased sensibility, increased contractility, and hypertrophy of the bladder, is a contra-indication to lithotrity; even the co-existence of any two out of the three renders the case extremely doubtful. Thus, when the urinary organs are highly sensitive, and the bladder has a strong tendency to contract, none but a most practised operator should think of undertaking lithotrity; and even he may soon experience obstacles which will compel him to abandon the attempt. Cases of this kind often present themselves in practice; and the failure which often followed injudicious efforts under such circumstances, was one of the chief causes that brought lithotrity into disrepute at an early period of its career.

The morbid sensibility of the bladder, as I have already remarked, is sometimes accompanied by diminution of its cavity. The bladder is more or less contracted; and, in aggravated cases, its walls are firmly applied over the surface of the calculus, which it seems to hold in a grasp; any fluid injected into the bladder is immediately expelled with force, and all our efforts fail to make it retain even two or three ounces of water. Here lithotrity is manifestly contra-indicated. One of the conditions of the operation is, that the bladder should contain a certain quantity of fluid, or in other words, that a certain space should exist between the surface of the calculus and the walls of the bladder. Without such an interval, the movements of the instrument must be extremely limited, and the danger of injuring or exciting the already irritable bladder enormously increased. Between the extreme cases which I have now pointed out to you and those in which lithotrity is clearly indicated, there is a large number of intermediate ones, in which it will require great experience and judgment to decide whether lithotrity be applicable or not. The degrees of sensibility and contractility vary in almost every patient, and many will bear the operation well under circumstances of a very discouraging kind.

We have now, gentlemen, discussed the indications derived from the physical nature of the calculus, and from the conditions of the urinary organs. It remains to examine those which relate to certain general points, such as the age of the patient, his state of health, &c. In a former lecture I mentioned that I was disposed to exclude from lithotrity all cases of calculus in children under twelve or fifteen years of age. The following are the chief objections against the propriety of applying lithotrity to the young subject. The genito-urinary organs of the child are not fully developed before the age of puberty. The diameter of the urethra is small; the antero-posterior diameter of the bladder is also short; the bladder of children is very irritable, and the neck of this organ is very dilatable—a circumstance which greatly favours the impaction of fragments in the urethra after the stone has been broken up. Finally, the indocility of the child is a great obstacle, and often renders it impossible to manipulate the lithotrite in the bladder. On the other hand, it is well known that lithotomy is highly successful in children, not more than one in fifteen or twenty dying after the operation when performed on subjects under fourteen years of age. Children then, by almost universal consent, are handed over to the lithotomist.

Certain states of the constitution contra-indicate lithotrity. When patients have suffered from a calculus affection for many years, their general health is often greatly reduced, even though no signs of any severe lesion can be discovered in the bladder or kidneys. The temper becomes extremely irritable; the patient loses flesh; there are frequent febrile attacks; the bladder is contracted, and the desire to pass urine is frequent. In cases of this kind, any attempt at lithotrity would only aggravate the constitutional disturbance, and probably light up fatal disease. Here lithotomy holds out much greater hope of relief. The kidneys often suffer more or less during the continuance of a calculus in the bladder. This is a fact well known to all practitioners; but in the whole subject of lithotrity there is nothing more difficult to determine than the indications which should be drawn from the existence of renal disease in a patient labouring under stone. The majority of writers lay it down as a principle, that lithotrity should be rejected in all cases complicated with organic disease of the kidneys; while, on the other hand they affirm that diseases of the kidney, as well as of other organs, are less liable to be aggravated by lithotrity than by lithotomy, the former operation giving an infinitely less shock to the system than the latter. I must confess, however, that I should be very unwilling to perform lithotrity on a patient in whom unequivocal signs of organic disease of the ureters or kidney had been detected. It is certain that disease of the kidney is the cause of death in a great many of those patients who die after lithotrity; and it has also been proved that the operation is very apt to develop or call out latent disorder of the secreting organs, and at all events render the disease more rapidly fatal than it would have been. Whether, as M. Civiale asserts, lithotomy has not a greater tendency to exasperate the existing lesion of the kidneys, is a question very difficult to determine, yet on this point depends our choice between the two operations. If we are to select lithotrity, it should, in my opinion, be only when the renal disease is not very far advanced, and where the condition of the bladder and nature of the calculus lead us to conclude that the operation may be completed within a short period.

(To be Continued, January No.)

Clinical Lectures
ON
INJURIES AND DISEASES OF THE JOINTS.

Delivered at St. Thomas's Hospital.

BY SAMUEL SOLLY, ESQ., F.R.S.

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[*Continued from November No., p. 388.*]

LECTURE III.

IN my last lecture I directed your attention to a disease of the hip of long standing. To-day I shall endeavour to interest you in some of more recent date.

The first case that I shall read to you is one which has engaged my attention for some time, and especially in reference to this operation of excision of the head of the femur. It has been the subject of many consultations with my colleague, Mr. Green.

Wm. B———, aged thirty, labourer, admitted into George's ward, under the care of Mr. Solly, March 25th, 1851, with an abscess in the right thigh. He states that he fell from a scaffold about twelve months since, and struck the outer side of the thigh, about the situation of the trochanter major; he rested a day or two, and then resumed his work, but ever since he has had pain in that neighbourhood. About six months ago he noticed a swelling near the insertion of the tensor vaginæ femoris muscle, which soon became prominent and tender; but he continued his work until about two months since, when he became quite unable to walk. He has had blisters and other applications constantly applied to the part without any benefit. Now the swelling can be covered by the hand: it has a rounded outline, and presents distinct fluctuation. The pain has been of a dull aching character, increased by any movement of the limb. The latter appears to be shortened, but there is no difference compared with the sound limb when measured from the anterior superior spinous process to the patella. The general health is not much affected; the pulse is quiet and tongue clean. An incision was made into the abscess, and about thirty ounces of thin whey-like matter evacuated, with some curdy flakes in it; a poultice of linseed was then applied. The opening continued to discharge a large quantity of ill-formed pus for some time; he became feverish towards evening, with cold flushes, and lost his appetite; the pulse increased in frequency, and on March 31 was 110, on which day he was ordered a pint of porter and strong beef tea. He then began to improve, the hectic symptoms decreased, the discharge became less, and the appetite better. The walls of the abscess seemed to be uniting, and a probe introduced into the wound only showed a long sinus, which passed quite up to the trochanter major. About the middle of April he began to complain of pain in his knee, and a good deal of tenderness in the groin; the pulse became quicker, and he had profuse perspirations. He was ordered disulphate of quinine, two grains; dilute sulphuric acid, ten minims; in compound infusion of roses; three times a day, and a slice of roast meat daily.

He continued in much the same state for some weeks. About May 18th the discharge became thicker, and quite changed its character, being of a port-wine colour, and very profuse. The probe passed its whole length into the sinus, and then touched a portion of dead bone close to the trochanter major. At this time the sweating and quick pulse subsided a little, and still more after he had taken four ounces of wine daily, which was first ordered May 19th, 1851. The red discharge continued for about three weeks, and then became milky again. A small piece of bone came away about the size of two barleycorns. The discharge diminished, the hectic state subsided, and he seemed to be gradually recovering. It was noticed, about June 1st, that the foot had changed its position, and was turned outwards. There was also a shortening of the limb for at least three inches, and the hip itself had become very prominent. On measuring the limb, the distance between the knee and the anterior superior spinous process was found to have decreased at least an inch and a half, whilst the trochanter was at least an inch further from it—probably more, but it could not positively be determined, on account of the thickening over that process. He now remained stationary for about a month, when the bloody discharge was set up again, and continued more or less for a fortnight, and then subsided. This was about the middle of July; at the end of that month, another small piece of bone came out of the sinus with the discharge. The pain in the knee and groin quite left him and he improved considerably in his general health. In this state he had continued since that time, entirely confined to his bed, and for months unable to help himself at all. About the beginning of November he became able to bend his knee a little, and move himself without any pain. The discharge, which was quite purulent, diminished in quantity; his appetite kept good, and his pulse quiet. At this time (Dec. 2nd,) the limb is in the same position as it was in July last, and the sinus still passes up towards the trochanter, but not to it. The discharge is not profuse, but becomes a little more so after the limb is moved. He has not any pain. There is a considerable thickening of the tissues around the hip, and there does not seem any tendency for the pus to become confined, easily escaping by the sinus. The appetite has not been quite so good during the last week, but the pulse is quiet, though small, and the tongue clean; he has neither heats nor perspirations to any extent; has a slight cough, but no physical change about the thorax, although a strong tendency to phthisis exists in the family.

December 20th.—A fortnight since, the discharge became increased in quantity, and somewhat thinner, and three days ago a piece of bone was removed, about a third of an inch long, and half that thickness. The discharge has already lessened, and is more purulent; appetite is good, but has been but indifferent lately.

January 20th, 1852.—Since the last report, the discharge has gradually ceased from the old sinus, and the opening itself has nearly closed; but coincident with this, a small opening was formed spontaneously about six inches higher up, and in front of the trochanter. This occurred nearly three weeks since, and there was at first a somewhat free discharge of pus from it; but it has been lessening gradually, and is now comparatively slight. He is free from pain, and complains only of some tenderness in the vicinity of the opening; but neither here nor in the old sinus can any loose bone be detected. There is no motion in the joint, and on placing the hands on the trochanter and anterior spine of the ilium, and asking him to move the thigh, it is evident that the pelvis moves with the limb. There is a great deal of firm deposit about the joint, and it is much widened and flattened posteriorly. His appetite has continued very good; pulse moderate; sleeps well; no hectic symptoms; and he is decidedly gaining strength from week to week.

This case is not an ordinary case of strumous disease of the hip-joint. I thus read its history:—The fall from the scaffold injured the hip, and set up inflammation; not sufficiently acute to prevent him from following his occupation. His scrofulous diathesis, inherited from a phthisical parent, gave a sluggish turn to the disease; slow but extensive suppuration ensues. During this stage, the poor fellow was very nearly sinking into the grave, and for some days I hardly expected to see him at my next visit; but thanks to a tonic plan of treatment, and the nourishment and stimulants which our nobly-endowed hospital enables us to order, he has, by the blessing of Providence, weathered this storm; and if I had lectured on his case a few weeks ago, I should have said, that I hoped that the disease was arrested, and a new though false joint had been formed; but these hopes have been disappointed. He was anxious to go into the country, and I thought it right to see if he would bear a little change from his bed for a short time during the day; but even this movement induced fresh inflammation, and a considerable increase of suppurative discharge.

Such a change as dislocation of the hip, from ts effects and consequences, when it occurs to a man in health, and remains undetected and unreduced, must be regarded as one of the greatest misfortunes that could happen to him; but not so in disease of the hip, for dislocation does not take place until the joint has been so completely disorganized, that, as a joint, it is useless. The ligamentum teres is gone; the edge of the acetabulum, with its cotyloid ligament, has crumbled down, and has been carried away by the stream of pus which has so long flowed from the joint; its containing capsule is rent asunder. It has been recommended, when such displacement was likely to take place, that mechanical measures should be adopted to retain the bones in apposition. This is a great mistake, and Nature in her measures on this occasion, as on many others, shows herself a better pathologist than the surgeon.

The patient is relieved by this change from the misery he has so long endured by the friction of two ulcerated surfaces; and it is most striking how our patient, whose case I have just read to you, improved in general health, evidently by relief from pain, as soon as the cervix femoris was released from its distressing prison-house.

I do not mean, by these observations, that you are to be indifferent to the displacement of the bone, or to encourage it, but I wish you to understand that you must not endeavour to keep it in its place by force; and that when there is much suffering, it is better to leave it to nature.

Nevertheless, in all diseases of the hip-joint, you cannot pay too much attention to the position of the limb. If the limb is allowed to be too much flexed, and rotated inwards, pressure will be made on the outside of the capsule, and dislocation on the dorsum ilii will occur before the diseased condition of the cartilages really requires the change. If, on the other hand, the thigh is everted, then dislocation may take place on the os pubis, from undue tension of the inner surface of the capsule; and again, even if dislocation does not occur, but if you succeed in procuring anchylosis, the position of the anchylosed limb is very faulty. It is therefore very important to keep the limb extended, if possible. I say if possible, because in many of these cases the flexed position is so much easier to the patient, that any attempt to extend it gives such severe pain, and sets up so much constitutional disturbance, that we are frequently obliged to abandon it; for you must remember that your patient's life, which is in jeopardy, must not be risked by increasing the constitutional irritation, which is often very severe. When I speak of an extended limb, I do not mean that it should be perfectly straight; for when the hip-joint is anchylosed, it is better that the knee should be slightly bent; the patient being able to walk better with the limb a little flexed, and it is more easily carried over inequalities in the surface of the ground than when it is quite straight.

Jean Louis Petit, in 1722, first pointed out the existence of executive dislocation as the result of disease of the hip-joint. Louis Petit was a fine old surgeon, and he liked to protect his professional brethren. On one occasion he was called to see a lady, who was suffering from disease of the hip, "who for two months after a fall," to use his own words, "had complained of a rheumatic pain that had seized upon her hip and her whole thigh. At the recital that was made me of her fall, and the circumstances that attended it, I was prepossessed, even without touching her, with an opinion that the thigh was dislocated upwards and outwards. Nevertheless, before I told her all, I examined her, and found all the signs that denote this luxation. I then declared to her that her thigh was disjointed. The assistants blamed the surgeon who had her under care, because he had not discovered this dislocation. I informed them that they blamed him wrongfully, because he had not seen the patient but the three or four first days; and that besides, this disease is not known, though very frequent, and does not manifest itself till a long time after the fall.

"'Tis a luxation of a very particular kind, which the strokes don't produce at first, but of which they are the occasional causes. 'Twas by having been deceived myself, and having reflected upon my error, that I found it out, and give the observation of it at present, to the end that for the future the number of cripples may not be so great. There are many whose limping is only caused by this distemper not being known in its beginning.

"Many of the profession who were called in, as well as myself, pretended to excuse the surgeon, but by such weak and extravagant arguments as, far from destroying, confirmed the error of those who blamed him.

"There are many such false brethren, who only attack our reputation by silence—a dumb language, but so much the more eloquent as 'tis affected. As I am an enemy to such treacherous persons, far from being silent on this occasion, taking part with the truth, I assured them that the thigh was not luxated at the time of the fall, but long after."

Mr. Collis, of Dublin, in his lectures, makes an observation, which, though I cannot confirm it by my own experience, is one of sufficient importance to be worthy of your attention. The patient labouring under hip-joint disease will often appear to get almost well, and his parents and medical attendants will be congratulating themselves on his improved condition, when they will be very much disappointed in their expectations by finding him with the symptoms of hydrocephalus. He gets convulsions, and may be carried off in twenty-four hours. This, Mr. Collis says, he has often seen occur.

FATAL BITE FROM A COBRA-DI-CAPELLO.—One of the keepers of the serpents at the Zoological Gardens, Regent's Park, was bitten in the nose on Wednesday last, by a cobra-di-capello (hooded, or spectacle snake,) whilst foolishly engaged in playing with the reptile, and he expired in sixty-five minutes afterwards. A *post-mortem* examination of the body has been made, and we shall next issue, publish any points of interest which the case may present.

Clinical Lectures

Delivered at Guy's Hospital.

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[*Continued from October No., p.* 338.]

LECTURE V.

Remarks on the case of calculus in the bladder related in the last lecture; recapitulation of the facts of this case; considerations touching the amount of dilatation which the urethra should undergo by the use of catheters; rules regarding this dilatation, which is generally carried too far; the meatus urinarius is the criterion or guage; case in which over-dilatation might have done much harm; another case in which over-dilatation and slitting up of the meatus failed to effect a cure; good results in the same case obtained by a second surgeon in adopting an opposite course; remarks on this case. Question as to when a stricture of the urethra may be considered cured; distinction to be made as to the age of the patients. Enumeration of the signs which point out that a stricture is quite cured—viz., 1, *unobstructed passage of the instrument;* 2, *nature of the stream;* 3, *complete emptying of the bladder;* 4, *no ammoniacal odour;* 5, *absence of mucus or pus;* 6, *absence of any discharge. Remarks on the causes of constitutional disturbance in cases of stone in the bladder; disease of the kidney one of the principal causes; danger of resorting to operations of any kind with patients labouring under disease of the kidney; parallel between the symptoms produced by the presence of a stone in the bladder and those depending on diseased kidney; symptoms exclusively owing to the presence of the calculus; case illustrating such influence formerly treated by Mr. Aston Key. The operation of puncturing the bladder through the rectum for complete retention of urine; dislike of some surgeons to the operation. Case of complete retention of urine. Enumeration of the various symptoms of stricture, and remarks touching their cause. Tumours in the perinæum; necessity of opening them early. Fistulous apertures. Complete retention. Bleeding from the urethra from forced attempts at catheterism; evil effects of this practice.*

GENTLEMEN,—I promised at the close of the last lecture to offer this day a few general remarks on the case of calculus in the bladder which has already largely occupied our attention; before doing so, however, I will just recal to your mind the chief features of the case. The patient was affected with stricture of the urethra, which stricture had been cured by dilatation, and some time afterwards it was found that a calculus lying in the bladder was keeping up a great degree of irritation in the system, of which irritation the patient eventually died. You saw the preparation here last time we met; you then convinced yourselves that the stricture was situated at the bulb, and that it was for all practical purposes cured by dilatation of the urethral canal, though the submucous tissue was considerably thickened.

You would now have a right to ask, what is the limit to be given to this dilatation of the urethra? Now such a limit can hardly be fixed, as the size and calibre of the urethra are different in each individual patient, so that I would warn you from founding your practice upon the numbers marked on the catheters or bougies. This course would be very defective, and even dangerous; for the proper method is to suit the amount of dilatation to the size of the urethra of the individual patient. You may, in fact, go on dilating the canal almost to any extent; but this is bad practice. The best means of judging of the calibre of the whole canal is to reckon it upon the size of the meatus urinarius; this is the best test or guage, and the instrument which will easily pass the meatus, ought to glide along the whole length of the canal, and into the bladder. Thus you see that there is no standard as to what ought to be the largest instrument used. Makers of catheters and bougies will prepare them up to Nos. 12 and 13, and even higher; but I consider it very unphilosophical to adhere to these previously fixed numbers; every man has his own peculiar size, and this should not be enlarged further than natural. It is extremely hazardous to stretch the urethra beyond measure, and the most unpleasant results frequently follow this practice.

A gentleman in my neighbourhood applied to me, a short time ago, with a stricture situated at the bulb. At first I could only pass a catgut bougie, but subsequently succeeded in introducing Nos. 5, 6, and 7. The latter number was passed through the meatus urinarius with difficulty, and gave the patient pain; it produced a good deal of irritation, and I am confident that a considerable amount of mischief would have been done by going beyond No. 7. Indeed, using that number at all was wrong. Nos. 5 and 6 were this patient's size, and by adhering to them, he recovered perfectly, and is now quite well. He passes now and then No. 5 for himself before going to bed, and leaves it in the urethra about a quarter of an hour. It would have been quite absurd to have gone on increasing the size of the bougies and the number of my fees; such a course would have been a great injustice to the patient, and very discreditable to myself and my profession.

This case reminds me of an analogous one, in which the patient came from a distant part of the world. He brought to London letters of introduction for two surgeons, of whom I was one; and he first applied to the other. He was, however, not benefited, and as he wanted to return to Ceylon, the surgeon finding the meatus narrow (it would admit Nos. 5 and 6), slit it open, so that Nos. 9 and 10 could be easily introduced. These numbers were persevered in, in spite of the stretching, pain, and uneasiness felt by the patient; but as no real beneficial progress had been accomplished by the first surgeon, he made use of his second note, and came to me, tormented by urethral pain and inconvenience, with great depression of spirits.

I found the corpus spongiosum, containing the urethra, as hard as a stick, tender on pressure; a pretty constant discharge of mucus from the urethra, frequent desire to pass urine, always accompanied by pain in the penis, which was rigid and hanging down, not erect, the corpora cavernosa not being involved in the mischief or excitation; the urine emerged very sluggishly, great expulsory efforts being required to insure even its slowly draining from the penis; the canal seemed almost obliterated, notwithstanding the calibre of the instruments which had been forced along its length with assiduity and energetic perseverance. Reflecting on these conditions, and the description which the patient gave me of his state before the employment of large instruments, I concluded that he had had sounds of too large a size passed. The urethral canal being thus considerably hardened, I interdicted the use of instruments, and prescribed mercurial and iodine ointment to be rubbed along the perinæum and the whole course of the urethra, to aid or induce interstitial absorption. In about ten days, the induration had materially diminished; and after consulting with Mr. Bransby Cooper, who fully coincided with me in my view of the case, it was agreed that the patient should be placed constitutionally under the influence of mercury, for the purpose of diminishing the size of the corpus spongiosum, and I also began dilating the urethra *de novo*, keeping at last within No. 8.

In the course of a few weeks, I could make No. 8 go into the urethra beyond the meatus, (which you will recollect had been slit open to a larger size), but it required more force than was right to be employed, so I advised him never to attempt himself, nor to let any one else be trying to pass instruments beyond No. 6. By pursuing the constitutional treatment which has been mentioned, by blistering the urethral portion of the penis, and by carefully using this number or size, the most satisfactory results were obtained, and the gentleman left for Ceylon, delighted at the comfort and improved condition he was experiencing. I advised him to pass No. 6, for that was his size, and not No. 10 or 13, occasionally, or once a week, and to blister the urethra if he felt much uneasiness or inconvenience in that canal when on his journey.

You see, then, that I apprehend the surgeon who first treated the patient had done too much; he had gone too far, and had, in his anxiety to enlarge the urethra, excited mischief. I repeat it, the best single criterion of the natural size and calibre of the whole canal is the meatus urinarius, provided that be obviously healthy. Take, then, a good measure of that aperture, and you will have a tolerably reliable guide as to what extent you should push the dilatation in treating strictures of the urethra.

The next question now is this—When may a stricture of the urethra be considered cured? This question should, however, be restricted to patients who are young, or in the middle period of life, and who have no other disease of their urinary organs.

You observe I intentionally exclude the aged or prematurely old in answering this very pertinent and practical question: the reason is, that with such patients there are usually structural changes going on in the urethral walls, prostate gland, and bladder, which may be said to be natural to that period or condition of life, and which produce and cause the persistence of some of the symptoms of a strictured urethra, in spite of any and every effort made by the surgeon to stay or avert them. Confining ourselves, therefore, to the young and middle-aged, we may say that the patient is cured—1. When (assuming there be no local disease, such, for example, as the cicatrix of a chancre, causing contraction at the meatus of the urethra) a catheter or sound which fills the end of the urethra can pass through its whole length without any except muscular interruption.

2. When the water flows freely and *with force* during micturition, without pain or smarting in the urethra. Here you should notice that the *force* with which the urine is expelled is a good criterion of the powers of the bladder and healthy urethra. The actual *size* of the stream is not so trustworthy a sign as the vigour just mentioned, for the urethra (and consequently the stream) may be naturally large. But the force with which the expulsion is performed, shows whether there is an impediment in the way or not. Another point of importance is, that the urine should be voided without pain, for where micturition causes uneasiness there is certainly something wrong about the bladder or canal, and the patient cannot be considered as cured.

3. When the bladder empties itself completely, and the act of micturition is not followed by any dribbling; for if any such dribbling take place, it will point to a kind of atony in the muscles of the urethra, lately found and described by a very intelligent surgeon, Mr. Hancock, of Charing-cross Hospital.

4. The urine should not emit an ammoniacal odour.

5. There should be no mucus or pus in it.

6. There should not be any habitual discharge from the urethra.

You see, by the six heads which I have just enumerated, that there are many physical circumstances to be taken into consideration for pronouncing a patient cured, besides the free passage of the instrument along the urethra.

Let us now turn to another point connected with the case related in the last lecture. The difficulty in that case was not in the diagnosticating the presence of a stone, (for this is, in most cases, easy enough,) but in determining what was the cause of his constitutional disturbance. In fact, what was the cause of this patient's constant distress? Was it solely the irritation of the stone? I did not think so, but Dr. Barlow was inclined to hold that opinion. Was the man affected with pneumonia? Dr. Barlow thought not. Was it continued fever, idiopathic as it is termed—viz., one in which the disease has no fixed locality? The physicians considered that this was not the case. Were the symptoms owing to disease of the kidney? This, according to my views, is the most probable supposition. And in this idea I am supported—1st, by the patient's period of life; 2d, the stricture, which had existed for a long time; 3d, the dry, harsh skin; 4th, the thirst; 5th, the pains in the loins; and 6th, albuminous urine.

Now, first, as to age, you should recollect that it points more forcibly to disease of the kidney in the lower than in the upper classes; for the former tax the renal organs much more severely than the latter, by hard work, exposure to wet, sudden changes of temperature, and the immoderate use of spirits.

The second cause of diseased kidney which I mentioned, is stricture; this is, indeed, a very common cause of renal mischief, and I need but refer you to the numerous cases on record, where coarctation of the canal of the urethra led to disease, first of the bladder and then of the kidneys.

The dry and harsh skin, of which I spoke in the third place, is, with other signs, strongly indicative of disease of the kidney, and, so is thirst and pains in the loins.

In the sixth place I alluded to albuminous urine, and this leads at once to a suspicion of diseased kidney; but it would be erroneous to suppose that in this case the presence of albumen in the urine was pathognomonic of diseased kidney, for the albumen might have come from the bladder.

Thus you see how hazardous it is to resort to lithotomy, or any other operation, in cases where the symptoms I have just described are existing. Disease of the kidney is almost surely fatal to the success of any operative interference, however skilful the surgeon may be; and this state of things will baffle the best efforts of the most experienced operator. Had I performed lithotomy or lithotrity upon this man, in the face of the symptoms so clearly pointing to diseased kidney, he would, in all probability, have died a few days after the operation—he might have suffered much pain, and the odium of the unfortunate issue would have rightly fallen upon myself. Pray consider these matters carefully, and when fairly launched in practice do not lay yourself open to unmerited blame by operating in cases where you have reason to believe that the kidneys are in a diseased condition; do not allow the transitory *éclat* of an operation, performed may-be triumphantly against time, to lead you to sacrifice to personal vanity, or selfishness, the higher consideration of integrity of purpose, which the necessity of a hospital patient, or the confiding reliance of a private patient, may place at your conscientious disposal as a surgeon. This warning is the more important, as such patients may, when treated by mere palliatives, live a long time with organic disease of the renal organs.

If, however, you detect a stone in a patient who presents the symptoms I have mentioned, and you have reason to believe that they are independent of the local irritation of the calculus, you ought to attempt the removal of these symptoms before resorting to any operation. But if you are satisfied that the morbid signs arise exclusively from the irritation excited by the presence of the stone, the first thing to be done is to remove the latter.

As to the present patient, I was sure that he laboured under diseased kidney, for he exhibited much drowsiness, which symptom, coupled with the others, left no doubt on the subject. But recollect that the calculus itself may give rise to very serious symptoms; I remember the case of a boy which beautifully illustrates this fact. He was admitted more than twenty-three years ago, under the care of Mr. Key, into this hospital. The patient was about thirteen years of age, and complained of some slight pain in the loins, and very severe pain on micturition; he had pus and mucus in his urine, and occasionally blood; he was emaciated, very low in strength, though there was no fever, but the skin was dry and harsh, and there was much thirst. The boy was so weak that we all thought he must sink under any operation, but Mr. Key was of a different opinion, believing, from the age and history of the case, that the constitutional disturbance depended entirely on the presence of the calculus. The operation was performed, and the boy recovered perfectly.

You should nevertheless remember that, as a rule, diseased kidney is the most serious visceral association tending to fatal results after operations.

Allow me now to direct your attention to a subject of great importance—viz., puncturing the bladder through the rectum for complete retention of urine. This operation is the more worthy of careful examination at our hands, as it is repudiated by many surgeons, who consider it extremely dangerous and unadvisable. But if I can prove to you that the distressing agony of complete retention of urine may very safely be removed by giving issue to the pent-up renal secretion through the anal orifice, I shall save the operation from the opprobrium which has been heaped on it. I do indeed believe that a great many surgeons condemn it on purely theoretical grounds, without having any practical knowledge of the operation. I fully remember being told by a surgeon of a metropolitan hospital, that, although attached to a large institution, he had never seen the bladder punctured through the rectum.

I cannot do better, in order to lay the subject before you in its proper light, than read to you the following case as reported by my dresser, Mr. Puckle:—

Stricture of the Urethra, followed by Fistulæ in Perineo; subsequent Retention of Urine; Puncture of the Bladder through the rectum.

"G. H——, aged sixty-six years, and looking very old for his years, was admitted into Phillip ward, Nov. 19, 1851, under the care of Mr. Hilton."

You hear that the patient looked very old; this is an important fact, and should serve as a guide as to the line of practice to be adopted. You know that alterations of various kinds take place in the urinary organs towards the decline of life, and that those patients who look worn beyond their years are most likely to suffer from these alterations.

"The man is married; has been an inmate of St. Saviour's workhouse, and is by trade a shoemaker. The diathesis is decidedly strumous; abscesses have frequently formed in various regions, and the patient is at the present time subject to caries of the ribs. His habits for the last twelve years have been steady and industrious, but previously very irregular. Twelve years ago he had gonorrhœa, and a little more than one year afterwards he first noticed the urine to flow in a forked, and sometimes interrupted stream, which state of things, by gradually increasing, caused great uneasiness and difficulty in micturition. He was treated seven years ago, by a surgeon who, at different times, passed instruments into the bladder. About seven months before admission, the patient found the difficulty of passing his urine much greater, the latter was at the same time thick and offensive, and he also experienced intense burning pain in the perinæum."

What might have been the cause of this burning pain in this case of old stricture? Probably the unhealthy state of the urethra behind the bulb, in which region there was possibly ulceration going on; in fact, the greatest pain and the greatest mischief were seated *behind* the stricture. This is a most valuable symptom, and teaches the surgeon at once which is the probable state of parts in the case in hand; but I proceed with the case.

"Three small and hard swellings formed in the perinæum; they slowly increased for three weeks, when the largest, about the size of a pigeon's egg, burst, and discharged a quantity of fœtid, yellow, turbid, and watery fluid. The patient again applied to a surgeon, who afforded some relief by the introduction of a catheter, and by medicines."

Let us stop a moment to inquire what were those small and hard tumours situated upon the course of the urethra in the perinæum? Now there are many surgeons who take a wrong view touching these tumours, and are afraid to interfere. Do not imitate them, but plunge the knife fearlessly into them. You will generally find these swellings hard, slow of growth, and somewhat painful on pressure. They remain hard for a long time, and retain a remarkably definite form, giving to the inexperienced touch the idea of a solid tumour; for the layer of fascia surrounding the corpus spongiosum yields but very gradually to the pressure of pent-up urine or pus, and the shape remains regular until the fascia bursts. If in practice you find such tumours in a case of old standing stricture, and there be some feverish symptoms, do not be afraid, as I stated before, of opening these obscure abscesses. You will thus give exit to fœtid pus, and considerably relieve the patient.

"After the passing of the catheter, the man had shivering fits every other day, followed by intense heat over the whole body, which heat was in its turn succeeded by profuse perspiration."

Pray give a few moments' reflection to this shivering. It may be excited by catheterism, and it may result from a slight extravasation of urine, but not of blood. I must confess I do not understand the exact *modus operandi* of such causes. I can say to you it is caused by irritation; but that does not explain anything. What is shivering, in fact? It is an involuntary action of some sets of muscles, which, in ordinary circumstances, are under the control of the will; and the action must emanate directly from the spinal marrow. This dynamic influence of the medulla spinalis must be the real cause of the symptoms, whether the shivering arise from ague, formation of purulent matter, or extravasation of urine; for the control of the will is in each case temporarily destroyed, and the action is automatic. It is not an easy matter to show how the irritation, or disturbing cause, whatever it may be, proceeds to the spinal marrow, and how it leads to such temporary consequences. But let us proceed with the case.

"At the end of a week, the patient was somewhat better, but up to the time of his admission he had not, at any time, passed more than a few drops of urine through the meatus, the greater portion of the fluid having continued to escape from the fistulous openings in the perinæum. These apertures had, however, been gradually closing up, and were succeeded by hard, nodular masses. The day before admission, the man was seized with absolute retention; he sent for a surgeon, who, after repeated and determined attempts to pass a catheter, causing very great pain and bleeding from the urethra, failed in accomplishing his object."

I shall here remark that it is always a serious matter to excite, with an instrument, any bleeding from the urethra. This laceration of the mucous membrane should always, if possible, be avoided, for it may be followed by results of a very unpleasant kind. I am aware that bleeding from the meatus is generally looked upon as a trifling accident; but I would warn you to beware giving rise to such hæmorrhage; a single drop of blood is a mark of injury. Do not think too lightly of it—it is the evidence of mischief.

Our time is expired; I must reluctantly break off here, and shall have much pleasure in proceeding with this instructive case at our next meeting.

LECTURE VI.

Continuation of the case of retention of urine in which the bladder was punctured through the rectum. Fruitless attempts at passing a catheter; discharge of pus through the meatus urinarius. The use of opium in cases of retention. The surgeon should endeavour to give relief without an operation. Symptoms of a full and distended bladder; distinction between suppression and retention. Anatomical reasons why the bladder distends in a particular direction. Parallel between the urinary apparatus and the hydraulic press. Operation of puncturing the bladder through the rectum. Description of the operation. Precautions to be taken when the patient returns to his bed. Progress of the case after the operation. Great improvement. Blood in the urine; removal of the canula. Severe constitutional symptoms, death. Remarks upon the likelihood of peritonitis having taken place; safety of the operation. Post-mortem examination. Anatomical preparation showing the course of the trocar. Pathological peculiarity of this patient's bladder. Considerations about the cause of death in this case. Reasons why this patient's bladder was punctured through the rectum. Review of the several methods of puncturing or relieving the bladder distended with urine:—1. By forcing a catheter into the bladder. 2. By puncturing above the pubis. 3. By puncturing through the perinæum. 4. By puncturing through the rectum. Recapitulation of the reasons which support the operation of puncturing the bladder through the rectum. Analogy with tracheotomy in disease of the larynx, and rest to the strictured œsophagus in giving nourishment by the lower bowel. Case of patient nourished by enemata for thirty-four days.

We now resume, gentlemen, the consideration of the case of stricture which formed the subject of the last lecture. Recollect that we are following the phenomena presented by a case wherein stricture of the urethra was the root of the evil; abscess, fistula in perinæo, and retention of urine had followed; and the contents of the bladder had eventually been evacuated, by puncturing that viscus through the walls of the rectum. Let us proceed with the details of the case.

"The following day, November 19th, the patient was brought to the hospital; and as complete retention had existed for thirty hours, Mr. Poland and Mr. Puckle, the dresser, endeavoured sedulously to introduce a catheter; they failed, however, in their object. The instrument, instead of entering the bladder, readily glided into a false passage, nearly three inches in length, along the anterior walls of the rectum, and immediately behind the prostate gland. Soon afterwards, nearly two tablespoonfuls of pus and urine escaped through the meatus."

You at once surmise that the pus here evacuated, proceeded from one of the abscesses, which, during the manipulations just described, had been punctured.

"The patient was now ordered a warm bath, and two grains of opium. Two hours afterwards he was seen by Mr. Hilton, who likewise tried to pass an instrument, but, not having succeeded, prescribed two more grains of opium."

What was my object in giving opium so freely? To endeavour to overcome the spasmodic state of the parts surrounding the urethra, and bring about relief to the urgent symptoms without having recourse to an operation. It is, indeed, a great triumph in surgery when we succeed in affording relief, and eventually curing an affection of a serious kind, without the use of the knife. There is always some *éclat* connected with surgical operations, but I would strongly advise you ever to prefer doing good to your patient, to merely trying to attract upon yourself the attention of your professional brethren, and make a public display of your dexterity. By giving the opium largely, I was endeavouring to overcome muscular spasm, which latter is so often the sole cause of the retention. Patients thus treated by opium, generally fall into a profound sleep, the spasm gives way, and they succeed in emptying their bladder by *vias naturales*, in small quantities at a time.

"At half-past seven P.M., Mr. Hilton saw the patient again, and found him evidently affected by the opium; he had been sleeping, was drowsy, the pupils contracted, and he was now in scarcely any pain. But the bladder, dull on percussion, might be felt extending upwards nearly to the umbilicus; it felt tense and distended with urine."

You hear it stated in the report that the bladder was *dull on percussion;* pray give your attention to this symptom, and bear in mind, on the other hand, that accounts given by patients of no water having been passed must not be fully relied upon as final in determining the case to be one of retention, for the patient's kidneys might have secreted no urine, the case being then one of suppression rather than retention. Dulness on percussion, and the definite form of the swelling, will quickly show you that the bladder is filled with fluid. I must, however, not omit to say for your instruction, that a gaseous tumour has been, and perhaps will be again, mistaken for a full bladder; the case being one of suppression of urine, and the intestines distended with gas occupying the site of the bladder. You should inquire the anatomical reason why the latter viscus does not distend sidewards, nor distressingly backwards, when filled with urine. The course and direction of the distended bladder are determined forwards by its adhesions to the anterior parietes of the abdomen, it being there attached by cellular tissue, and the remains of the urachus fixes it to the umbilicus. The lateral distention of the bladder is happily limited; if it were not so, the increased size of the viscus in that direction would cause compression of the iliac veins, and then œdema of the lower extremities; in fact, the round ligaments or remains of the umbilical arteries prevent the distention in the direction just mentioned. When the position and relation of the ureters and bladder are recollected, it is really surprising that, in cases like the present, the latter does not burst, or become forcibly rent from the pelvis; for these organs resemble much an hydraulic press—the bladder is the receptacle, and the ureters the tubes; and as these pass obliquely into the bladder, there is no necessity for the valves attached to the real hydraulic press. The neck of the bladder will become much elongated by distention. You may easily convince yourself of this by passing your finger into the rectum, and feeling at intervals of time the condition of the part whilst the bladder is filling from the ureters. The ligamentous tissue existing in the vicinity of the pubis, and around the neck of the bladder, is intended to resist over-distention or forced separation, notwithstanding the extreme stretching force to which it must be sometimes subjected; this is very probably the use of that tissue, else it would hardly be so strong and so abundant.

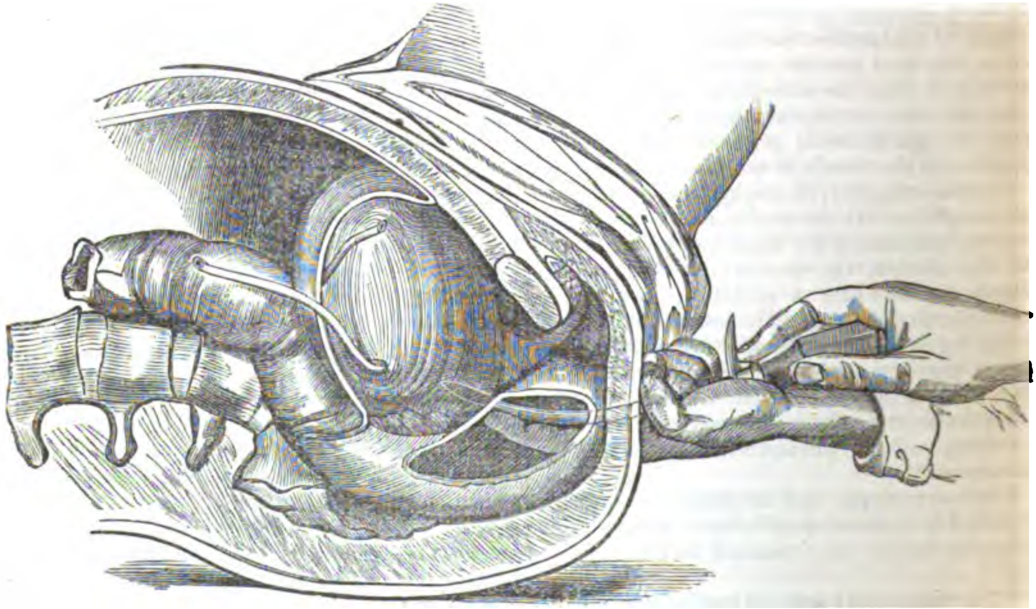
"Mr. Hilton having tried again, but without success, to pass a catheter, determined upon operating by puncturing the bladder through the rectum, by means of a trocar and canula. The patient was brought to the edge of the bed, and placed as for the operation of lithotomy, but with his head and chest much lower than the pelvis. Very nearly three pints of turbid, ammoniacal urine were drawn off, and the canula (consisting of three tubes, one within the other) was secured in the bladder by means of tapes fastened to a band round the waist. There was no blood lost; the patient was conveyed to his bed, which was previously carefully arranged, and he was allowed wine and porter."

I must here point out to you that the position of the patient for this operation is not exactly that usually assumed for lithotomy, as you will be able to see by this diagram; the head and chest ought, in fact, to be lower than the pelvis, and the rectum and bladder should be brought on a line. I will now attempt to describe the operation with the assistance of this drawing.

The sketch represents a section of the pelvis, with a part of the rectum opened, to show the course of the finger and instrument within the bowel. You pass the index-finger of the left hand into the rectum until you feel the prostate gland, and push your finger, if possible, behind that part, which is generally very high up in distended bladders. You then seek for fluctuation, and endeavour to ascertain this symptom, which, however, is not always easy to do. Desire now your assistant to make pressure upon the bladder over the pubis, and to press the viscus down towards the rectum, in which the finger is placed. Having recognised the posterior part of the prostate gland, and maintaining with all possible care the median line, glide the instrument along the palmar surface of the left index-finger until it is in contact with the distended bladder resting on the rectum; take out the director, introduce the trocar, and push it upwards and forwards one or two inches into the bladder, or till you lose the resistance which the coats of the gut and bladder offer to the trocar.

I have never before used the canula which I am showing you; but I think it certainly very useful, for it admits a sort of sound, the smooth and convex end of which protects the rectum from injury during its passage along the gut. Upon the trocar being introduced into the bladder, the urine will flow easily; great care should, however, be taken that the prostate gland be not transfixed, for such a mistake would very likely be fatal to the patient.

I show you here a canula which has been designed by Mr. Cock; it is composed of a hollow tube, provided with three cranks on one end, which are made to expand by the introduction of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a canula within it, and which latter is prevented by the cranks from slipping out of the bladder. I consider this as a very good instrument. You should, when the patient is in bed, place one pillow under his thighs, one under the pelvis, and the utensil between them, so that the urine may drip guttatim into it without wetting the bed. The details of the case proceed as follows :—

"The day after the operation, Nov. 20, the patient felt much better and quite free from pain ; has passed a considerable quantity of urine through the tube.—21st. Has slept well, tongue clean, skin warm and moist; the bowels not having acted since the operation, the patient was ordered one ounce castor oil,—22nd. Passed very dark motions. Ordered to repeat the castor oil, with twenty minims of tincture of opium ; six ounces of wine and one pint of porter daily.—23rd. The oil has acted very powerfully ; the patient has a troublesome cough, and was ordered a sedative expectorant mixture.—24th. To-day the two inner tubes were withdrawn for the purpose of cleaning them, and the bladder syringed out with warm water at 98°. As the bowels continued very loose, the porter was omitted, and ammonia, in a tonic and aromatic mixture, was prescribed.—25th, being the sixth day from the operation. For the first time nearly an ounce of urine was evacuated through the penis, and caused very great smarting pain along the whole course of the urethra, which pain was more particularly referred to the end of the penis.—27th. Passes as much urine through the penis as through the tube; he can retain a considerable quantity of urine in his bladder, nearly half a pint being evacuated at will by the meatus."

I will just remark here that this was evidence of great improvement, as the patient was able on the seventh day to pass as much urine through the urethra as through the tube in the rectum. This circumstance points to a favourable change in the walls of the urethra.

"29th. Very profuse diarrhœa has come on during the night, without any assignable cause. Mr. Hilton prescribed chalk mixture, with aromatic confection and syrup of poppies; the two inner tubes were to be removed and cleaned, and the bladder to be syringed with warm water.—Dec. 3. The urine passed through the urethra, besides a large quantity of pus, to day also contains blood ; there is great constitutional as well as local irritation. The presence of the canula in the bladder being considered in some measure the cause of these symptons, the instrument was removed. Ordered half a grain of morphia at night "

What was the cause of this bleeding from the man's urethra ? Probably from some sloughing in the perinæum; the blood is very likely to have come from that region, and not from any part about the canula.

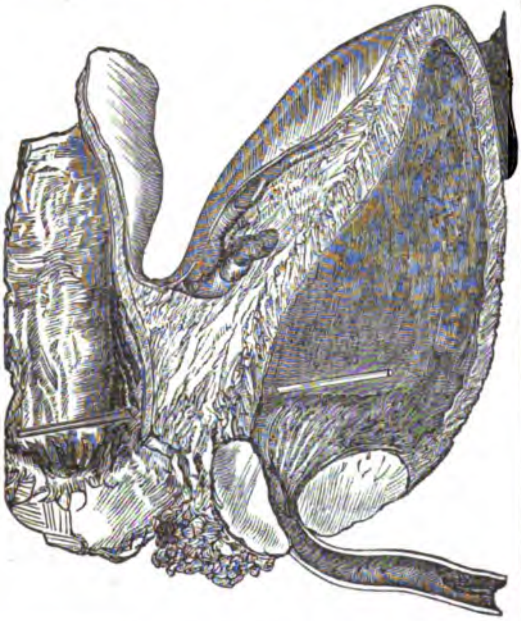
"Dec. 6th.—Better: the urine is more healthy, and does not contain any blood ; cough troublesome. To take a conium mixture three times a day. As the diarrhœa continued, a starch-and-opium enema was ordered.—9th. The patient passes almost the whole of his urine through the proper channel ; a very little of it is occasionally evacuated through the rectum ; he sleeps well, and is entirely free from pain. The nodular masses in the perinæum have disappeared.—12th. The patient again experiences difficulty in micturition, accompanied by great scalding and pain; the urine contains some dark venous blood.—14th. The bladder is very irritable, and the man thinks that a little water passes through the rectum ; the perinæum is hot and painful ; the pulse small and rapid ; the tongue brown and dry ; there is frequent vomiting and great thirst. Ordered soda water.—17th. Nearly all the urine passes through the two large openings in the perinœum.—19th. The patient lies in a half-conscious state ; his sleep is disturbed with constant moaning ; respiration impeded ; pulse intermitting and very weak ; tongue dry and thickly coated with a brown fur ; teeth covered with sordes ; and fæces involuntarily.—20th. He is fast sinking ; pulse imperceptible at the wrist.—21st. The patient was supported by beef-tea, eggs, brandy, and wine, but he expired at two A.M."

Ever since this man had had untoward symptoms, the mischief really lay in the perinæum. He had for some time been in a very unhealthy condition ; he was aged, and had been living upon poor-house fare. Though some suspicion of peritonitis might have existed, I found on examination that no such inflammation had taken place. The latter is the bugbear of surgeons in cases of this kind, but it should be recollected, that when the bladder is distended there is but little, if any, probability of wounding the peritonæum, by puncturing that viscus through the rectum

Mr. Cock has now operated upon between twenty and thirty cases of this kind, and is confident that, with care, there is not much danger of injuring the peritonæum ; the more so as it is lifted away from the vesiculæ seminales when the bladder is distended, though these parts are close to each other in the undistended state. I do not mean to maintain that there is no danger whatever of the peritonæum or vesiculæ seminales being wounded, but I repeat that, with care, this objection is no obstacle to the operation.

Post-mortem Examination.—The peritonæum did not present the slightest evidence of any inflammation. The abdominal viscera were all in their normal position, but pale, flabby, and badly nourished. The urinary bladder contained a small quantity of turbid, brownish, and highly offensive urine ; its muscular parietes were thickened to nearly half an inch ; the mucous membrane was inflamed, having upon it patches of recently effused lymph. Prostate gland but litle enlarged, and the strictured portion of the urethra, which was about one inch in length, and more free than during life, occupied the bulbous division of the canal, the walls of the urethra being thickened, and the mucous surface raised, uneven, and corrugated. Two false passages were found communicating with the urethra—one in front of the urethral obstruction, the other near the prostate gland. Both of these false passages were traceable into the large perinæal sinuses, through the medium of a sloughing cavity occupying the perinæum, and extending for a short distance between the bladder and rectum. The opening from the latter into the bladder made by the puncture, was situated not more than two inches within the verge of the anus, although at the time of the operation, from the distention and elevation of the bladder, it was nearly, if not quite, as much as four inches above it. The internal opening was about half an inch behind the prostate gland in the median line, valvular, and admitting a crow's quill. As much space as one inch and a half intervened between the puncture and the recto-vesical fold of peritonæum. The kidneys were mottled in appearance, unhealthy in structure, and of small size; they were contracted, and undergoing the ordinary structural changes associated with albuminous urine.

The sketch which I am showing you presents the parts in situ, without much dissection. A portion of the right side of the opened bladder has been cut away above the prostate, to enable the artist to indicate the position of the rectal and vesical openings at one view. On dissecting the parts more completely, and following the track of the trocar, it was found to have passed obliquely through the walls of the rectum and the tissues interposed between it and the bladder, crossing the posterior margin of the prostate gland, intersecting in its course the false passage, (noticed before the operation,) and dividing in part the left ejaculatory duct at its origin or point of separation from the vesicula seminalis. The bladder presented another pathological condition worthy of remark: it had, projecting from its posterior aspect and left side, a pouch or cul-de-sac, capable of holding one ounce of fluid, communicating with the bladder by an opening half an inch in diameter above the aperture of the left ureter, and protruding backwards between the left ureter and the base of the left vesicula seminalis This pouch was covered uniformly with a tolerably thick layer of muscular fibres, continuous with those of the bladder, and lined by an extension of the vesical mucous membrane.



It will now be useful to inquire what was the cause of death in this case. I firmly believe that this cause was not in any way connected with the operation; for there was not *locally* sufficient mischief to bring on a fatal issue. It is rather in the very dilapidated state of the man's constitution, in the premature decay which was so plain in him, that the cause of death may be sought. The diseased state of the kidneys (organs whose functions are of a depurating kind) has always a marked influence on the results of this operation, and it unfortunately is one of the most frequent and most fatal associations of long-continued stricture of the urethra. This is exactly the state of things in many of the patients who require the operation of puncturing the bladder through the rectum, or some other operation for their relief.

Practical men, who see many of these cases, must certainly be astonished when they hear, or see it stated, that all cases of this kind of old stricture, with perinæal sinuses, do well, whatever may be the particular or special treatment. For many days this patient appeared to be doing well, as regarded the urinary affection; but loss of strength and emaciation continued; no constitutional reaction, no general rallying, took place, and the system finally gave way. The appearance of blood in the urine was an evidence of ulceration and sloughing, solely depending on *loss of power*. It should, however, be noted that urine might have passed from the opening in the bladder to the false passage in front of the rectum, and thence into the perinæum, in this patient.

As the interest of this case mainly rests upon the operation of puncturing the bladder through the rectum, let us now suppose ourselves by the bed-side of this patient when this operation was contemplated. Here was a man suffering from retention of urine for the last thirty hours, with fistulæ and nodular masses in his perinæum. The best-directed efforts at passing a catheter were fruitless, and nothing but main force to make a canal seemed likely to avail. The patient was given warm baths and opium without success; and as he could not be in a worse condition, he must be relieved by some means or other. The requirements, then, were to afford instant relief, and the question arose what method should be adopted. There are several methods, which I shall now pass in brief review.

First. A passage may be *forced* through the urethra into the bladder. This involves the risk of wounding the peritonæum, and of exciting hæmorrhage, which may be fatal to a debilitated patient. No such proceeding could have been justifiable in this case, for the man was weak, ill-fed, and in a state of great irritation. This violence is likewise very painful, and the instrument may, by pressure upon the original canal, preclude the latter from ever recovering itself. The passage made by main force is also very liable to take on ulceration; extravasation of urine may then take place, and the most alarming symptoms ensue. There is likewise a risk of not finding the route again when the catheter is removed; but this untoward circumstance may be avoided by using Mr. Thomas Wakley's instruments, which allow flexible catheters to be withdrawn over a conductor or guiding rod, and be passed again along the same guide.

You may, in the second place, puncture above the pubis. This operation is never performed in this hospital; I am not aware, however, why such is the case, and my experience on this head is not extensive. But from the accounts I hear, I consider that evacuating the bladder by a puncture above the pubis may be very safe and effectual, and it is far from being difficult.

In the third place, the operation may be performed through the perinæum; this, however, is accomplished with much difficulty, and would prove an intricate operation for the generality of surgeons. The urethra is in the perinæal region so distorted by fistulæ and thickening, the canal is of so irregular a shape, that reaching the bladder by the perinæal route is an extremely tedious task. The operation is also extremely painful, and is of necessity mostly of a protracted kind; the patient, who is, in general, already much exhausted, can hardly bear this severe ordeal; hæmorrhage is sometimes very considerable; no one can say to what extent the parts may bleed; and it has happened that after a great deal of trouble to the surgeon, anxiety, pain, and risk to the patient, the bladder was not reached at all, and the operation in that respect remained incomplete. This course could by no means have been adopted in the case before us, as the patient was already in a very exhausted state.

Now, in the fourth place, you may puncture the bladder through the rectum. There is really no danger in this operation, in spite of what may have been dogmatically laid down against it; the experience of this hospital is all in its favour, and my colleagues and myself may certainly be excused for adhering to a practice which we have found effectual in relieving the patient, and perfectly harmless. Generally there is little or no hæmorrhage, the operation may be performed in a very short time, and is not in the least debilitating to the patient. The bladder is in this manner punctured at the lower fundus, and Mr. Cock's instrument will, after the operation, remain fixed in the pool of the urine which is forming in the lower portion of the bladder, the fluid thus constantly draining off by the rectum. In puncturing above the pubis, on the contrary, you are obliged to tilt the patient to favour the evacuation of urine; this is certainly very inconvenient. Recollect that by not allowing any urine to pass through the urethra this canal remains perfectly at rest, and there is a very good chance of seeing the stricture yield to treatment.

To recapitulate, then, I will just state that the reasons which lead me to prefer puncturing by the rectum rather than in any other way, are positive and negative. First, the negative reason is, that this operation is not open to the objection which may be brought against the other operations. Secondly, the positive reasons which can be adduced are :—

The operation is free from danger if carefully performed; there is very little risk of hæmorrhage; the operation is by no means of a protracted kind; it does not tax the patient's strength; is not exhausting, and entails no drain upon the system. As the lower part of the bladder is punctured, the accumulation of mucus, urine, pus, or other secretions, is not allowed, the viscus being completely emptied; you prevent the urine finding its way into the urethra, and give an opportunity to the false passages of healing, and the natural urethra of recovering itself. The seat of the stricture is kept in a state of rest; no local excitation is used, and all irritation, muscular contraction, or spasm is forestalled. There is, on the other hand, no chance of the bladder contracting away from the instrument; it *contracts towards it.*

The principle of the operation as regards the stricture is the same as in opening the trachea to relieve the swellings and obstruction in the larynx. You keep the larynx in a state of rest, the breathing goes on through the trachea below the larynx, and in a few days all swelling has subsided. You may also notice that the same principle of relief holds good in this operation as in obstruction to the large intestine. When an artificial opening is made above the seat of the stricture, so as to allow the escape of fæces, you remove a source of irritation from the stricture, the swelling and infiltration about it diminish, and, in a few days, small quantities of fæculent matter may pass through the narrowed portion of the intestinal canal. So in cases of stricture of the œsophagus, if we can keep the walls of the tube in a state of repose, it may sometimes recover in part its natural condition. This may be accomplished by feeding the patient by the rectum.

I recollect, in illustration of this point, a case of stricture of the œsophagus in the posterior mediastinum, which I attended at Islington with Dr. Golding Bird. There was perfect inability to get any instrument or food into the stomach, and, of course, excessive emaciation. By adopting the use of nutritive enemata, regularly and carefully administered, and by avoiding the employment of the œsophagus in swallowing, so keeping it in a state of repose, at the expiration of a fortnight, the patient had plumped up amazingly, and regained slightly the power of transmitting fluid food through the œsophagus. This improvement continued slowly to increase, but too slowly for the patient, and, not liking the anal method of taking good food, consulted another surgeon, who, relying on his manual dexterity with the probang to force or overcome the stricture, made a false passage by its side into the pleura, and desiring that the patient should give, as he hoped, the proof of his successful attempt, requested him to swallow some porter, which found its way into the pleura, and killed the patient, as proved by a post-mortem examination.

For the purpose of showing you how complete a nutrition may be obtained by proper injections per anum, I may mention the case of a gentleman I saw at St. Alban's, who had cut his throat so deeply that it was thought impossible to feed him either by the mouth or wound, and recourse was had to enemata. He was thus supplied with food, wine, and porter for thirty-four days; during that time his thirst and hunger were speedily relieved and satisfied by the injections—a curious and highly interesting physiological fact. He recovered from the effects of this unsuccessful attempt at suicide—came to London, and destroyed himself shortly afterwards by blowing out his brains. I shall, when we next meet, continue the subject of puncturing the bladder through the rectum, and enlarge upon the cases which I have myself treated in this way.

(To be continued in January No.)

ON THE TREATMENT OF DIARRHŒA BY SULPHURIC ACID.

By C. M. Miller, M.D., Stoke-Newington.

In The Lancet, sulphuric acid has several times been recommended in the treatment of diarrhœa. We are informed by the public journals that the Asiatic cholera is making rapid strides towards our coast, and that two members of the Board of Health are watching its progress. I think, then, I shall be pardoned for drawing the attention of the medical public once more to this remedy; and in order that I may not be supposed to recommend what I have not myself had experience of, I have here subjoined an abstract of twenty-seven cases of English cholera and diarrhœa, in which I have tried this plan during the last month, with one uniform result. I commenced it in the middle of August, and now leave the cases to speak for themselves.*

1. August 9th.—Mrs. W——'s infant, aged four months. When first called to this case, I found the child perfectly exhausted by diarrhœa and vomiting. She had been already ill three or four days; sunken eyes, and apparently very near death. The bowels were now constantly open, and there was continued sickness. I tried a variety of means until the 16th; I then commenced the dilute sulphuric acid. On the 17th the diarrhœa was much better; on the 20th the child was well.

2. Mrs. B's infant, aged twelve weeks; was attacked August 13th with diarrhœa. Similar means were used as in case 1, without much good effect for a few days, when the acid mixture was tried, and the child was relieved by the first dose.

3. August 22nd. Mrs. T——'s child, aged ten months, had been suffering from diarrhœa for the last few days. Was ordered the acid mixture. The first two doses were returned, but after the third dose the child got better. This child took sixteen doses before entire relief was obtained.

4. Mrs. S———, a patient in the Invalid Home, Islington, aged thirty-six, has been suffering from diarrhœa for a week. The third dose of the mixture checked the diarrhœa, but on leaving the medicine off the relaxation returned; she continued it for two days, and was quite well. This patient was in the Home for spinal irritation.

5. Anne H——, aged twenty-six; in the Home for pelvic abscess; has suffered from diarrhœa for three or four days. Took two doses of the mixture, and it was stopped.

6. D——, aged sixty, a nurse in the Home; has been suffering from diarrhœa for a fortnight. One dose of the mixture stopped it.

7. Mr. S——, aged between fifty and sixty, a gardener; had been ill for twenty-four hours. Nine doses cured him.

8. Miss S——, aged thirty-eight, was first attacked August 31st. Commenced the mixture; was better September 1st, and well September 2nd.

9. Mr. F——'s gardener, aged thirty-eight, was attacked Aug, 31st, with violent purging and sickness; tongue very much furred; applied to me Sept. 2nd, came again Sept 3rd, and said he was quite well.—The first dose stopped it.

10. V——, an omnibus conductor, aged thirty-two, was very much purged, and felt sick; two doses relieved him.

11. Mrs. B——, between fifty and sixty years of age, was attacked in the night of the 2nd of Sept. with violent purging and sickness. Had the mixture early on the 3rd; was relieved by two doses; but as she is naturally of a relaxed habit of body, she continued the mixture for a few days.

12. Mr. L——'s child, aged four months, while under the influence of vaccine, was attacked with diarrhœa; was relieved by the mixture, but not to the satisfaction of the father, who is a chemist, and who substituted an opiate mixture which I had ordered on a former occasion. This child was, however, doing very well under the acid.

13. Mrs. B——'s child, two years and a half old: the bowels had been relaxed for three weeks; one bottle of the mixture cured the child,

14. Mrs. C——'s child, aged-thirteen months, has been relaxed since yesterday, Sept. 4th, the bowels acting every ten minutes; the child took two bottles of the mixture and was well.

15. Mrs. F——, aged thrty-five and child, aged nine months, both suffering from diarrhœa, cured with one bottle each.

16. Mr. B——, aged sixty-five, diarrhœa and sickness with cramps; much better after the first bottle; well after the second.

17. Mrs. A——'s child, aged one year and a half, had been relaxed for many days, and was falling away very fast; much relieved after one bottle.

18. Mrs. O——, aged twenty-five, diarrhœa; felt quite comfortable after the first dose. I have frequently attended this young person for colic.

19. Mrs M——'s child, aged one year and a half. Diarrhœa, mixed with much blood; and, according to the sister's account, who brought the child to me, was acted upon every ten minutes. After one bottle of mixture, was relieved, three or four times a day. No other treatment was used, and the child was quite well.

20. Mrs. C——'s child, aged nine months, was attacked, September 12th, with violent purging and sickness; this continued, and she was first seen by me on the 15th, at nine o'clock in the evening. I

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* The following is the prescription for the mixture:—

℞. Acid sulph. dilut., ʒij.
Tinct. card comp., ʒij.
Aquæ distill. ℥vss.

F.M. Capiat cochl. duo statim. et repet. post singul. liquid. sedes vel vomit. et omnibus quat. horis.

found her with sunken eyes, contracted features, blueness about the mouth, partially insensible, and cold; in fact, apparently dying. She took twelve doses of the mixture and the purging ceased, but the exhaustion was so great that I feared for some days that I should lose her; she, however, is recovering, having taken nothing but ammonia and nourishment after the purging had ceased.

21. Mr. J. L——, aged twenty-one, Sept. 14th, was first attacked with pain, then constant diarrhœa. Six doses relieved him entirely.

22. Sept. 20th.—Mrs. H——'s daughter, aged thirty; has been ill for some days with violent purging, everything she takes passing through her as she takes it. The motions were at first black, then and now, light and knotty. She took three doses and was well.

23. Sept. 14th.—Mrs. W——'s child, aged seven months, was violently purged and sick; the second dose relieved her, and, to use her mother's expression, the evacuation from the bowels was like a child three years old.

24. Sept. 20th.—Mrs. M——'s child, aged eight months; has been suffering from diarrhœa for the last six days, and has now a motion every five minutes. After one dose of the mixture the purging ceased, and now, twelve hours after commencing the mixture, he has had but one action of the bowels, and that is more consistent.

25. Sept. 21.—Mrs. B——'s child, aged four years; diarrhœa commenced at two o'clock this morning; has had very much action on the bowels like jalap; first dose checked it, and he has only had three actions since he commenced.

26. Sept. 22.—Mrs. P——, aged about twenty-eight years; has had diarrhœa for three weeks, until she has become quite blanched; has had four actions since six o'clock this morning, and it is now only nine; pulse feeble; papillæ of tongue much elongated; pain in the loins and bowels; feet and legs swelling; she quite staggered from debility when she left my house; she says her natural colour is florid.—Sept. 23: She took three doses of the mixture, and the diarrhœa entirely ceased; her colour is already returning, and she says she has not been so well for these two months.

27. August 24.—Mrs. C——'s servant, aged thirty-two; was attacked with purging, sickness, and pain, with cramps. She took twelve doses of the mixture, and was well. The first two doses relieved her very much.

Here, then, are twenty-seven cases, not picked from a number of others, but taken fairly as they have occurred, one after the other, in my practice, during the last month—of all ages, from the infant upwards. I think, Sir, it was you who said, some few years past, that if we wished to arrive at the value of any remedy or plan of treatment, we must apply to it the numerical test. I think the above plan will fully bear that test. Of these cases, many were of a very severe character, and wanted but little to make them come under the denomination of Asiatic cholera: witness Cases 1, 2, 9, 17, 19, 20, and 26. We all know the intractability of infantile diarrhœa—and several of the above were such—but they yielded equally with those of more mature years. Theorizing is not of much use at present, although I have a theory regarding its mode of action. I only now ask the profession to try this remedy; and I earnestly entreat the Board of Health, before sending forth a list of means such as were formerly published, to give this remedy a trial. I have so much confidence in it, that, should we be visited by that awful scourge, the Asiatic cholera, I should instantly resort to it.

A few more words before quitting this subject. During the last visitation of cholera, our district was declared to be very nearly the healthiest in the neighbourhood of London; but who shall say that this will be the case on its next approach? With a Stygian stream meandering amongst us, which, because it is not sufficiently polluting, has just been made to receive, through a common sewer, the drainage of an entirely new neighbourhood—over-loaded drains and cesspools at our very doors, and without the means of removing their contents, except through our houses—can we expect to get off so easily? For fourteen years have the inhabitants of the district been paying at intervals a sewer's-rate, and to what advantage? A memorial was presented, a few weeks past, to the Commissioners of Sewers, signed by the medical men, and very many of the influential inhabitants of the neighbourhood, complaining of the drainage; and what has been the result? Little or nothing. Will it be believed, that in the centre of a densely populated neighbourhood, within two miles of Shoreditch Church, there runs a road, which in wet weather is in such a state that it becomes impossible to cross it without walking through a small pond. If the cholera does come, let the Commissioners af Sewers look to it; for if we suffer more this time than we did the last, they certainly must take a very large share of the blame.

P.S.—Since writing the above, other cases equally successful from the same remedy have come under my notice; but these I shall reserve for a future occasion.

ON A
CASE OF POISONING BY TWO OUNCES OF ARSENIC; RECOVERY.

By Thomas Bryant, M.R.C.S., &c.

W. C——, aged thirty, single, a butcher, and a notorious drunkard, after having received some act of apparent unkindness from an aunt from whom he had "expectations," was induced to poison himself; and on the evening of July 11th, at half-past nine P.M., I was called to see him. On my arrival I found him quite drunk, could not gain any information from the friends present, and only elicited from him that he had taken about three grains of arsenic a quarter of an hour previously. As there were no symptoms of poisoning present, I returned home and gave him, immediately, an emetic of a scruple of ipecacuanha with one grain and a half of tartarized antimony. On my visit to him at half-past eleven P.M., I learnt, from a friend who was absent when I first called, that he had certainly taken *at least two tablespoonfuls of arsenic.* The emetic had acted immediately, in some measure had sobered him, and had brought up a quantity of dark-brown flaky fluid, which, on analysis, contained abundant arsenic. The man was very drowsy; skin moist; pupils natural; complained of pain on pressure over the pit of the stomach; tongue foul, but not injected; bowels purged once of a very fluid, fœtid stool; pulse 100, full and strong. After hearing the true history of the case, and as there were no symptoms of vomiting, I applied the stomach-pump, injecting barley-water (the only thing at hand) till it returned almost clear. The fluid withdrawn was more opaque, contained some brown curdy material and some arsenic, but not more than ten grains. Not feeling satisfied with this result, I ordered one scruple of the sulphate of zinc every two hours until I saw him at half-past eight A.M. the following morning. I then found that he had taken four doses of the zinc, had vomited considerably after each dose, but not continually: the fluid rejected was clear, with brown curdy flakes suspended in it, (containing arsenic,) and on pouring off the supernatant fluid, the arsenic collected was about sufficient to cover a shilling. The man was bathed in sweat, experienced slight pain in the abdomen, increased on pressure, but at times very severe; there was but little dryness of the throat; tongue foul and slightly injected; bowels purged three times; the stools loose and of a dark colour; pulse 100, full, but weak; and the patient expressed himself as feeling "tolerably well." The hydrated oxide of iron was given in doses of two ounces every two hours, and a dose of castor-oil exhibited. Nine P.M.: Nausea, but no vomiting since eleven A.M.; still slight abdominal pain; tongue foul, but very slightly injected; bowels have been open three times with pain; motions very offensive, of a dark colour, and one looked bloody; pulse 100, full, and of more power.

July 13th.—Twelve at noon: Passed a good night; has still pain over the abdomen, increased on pressure; tongue the same; bowels have acted twice, but the stools were thrown away; skin moist; no perceptible dryness or redness of the throat; pulse 96, full, and of good power; indeed, the man says he is "nearly well." Continue with medicine.

14th.—Altogether improved; pain in abdomen less; skin moist; tongue cleaner and less injected; no nausea; bowels open twice, and motions loose, very offensive, and dark-coloured; pulse the same. Ordered, spirit of nitrous ether, two drachms, tincture of henbane, one drachm and a half, water, six ounces; take one-fouth three times a day.

15th.—Still improving; no tenderness of the abdomen; tongue cleaner; bowels have not been opened; pulse 96, and natural. Castor-oil, one ounce at bedtime; repeat mixture.

16th.—Bowels opened four times, and motions contained scybalæ and blood; there is no pain in the abdomen, not even on severe pressure; tongue foul, but not injected; skin cool; pulse natural. Repeat oil.

17th.—Bowels opened twice, stools depositing a white powder, and contained blood; otherwise much improved.

18th.—Stools natural, but loose.

21st.—Has continued daily to improve; motions healthy and solid; and indeed may be considered well.

Remarks.—The questions which naturally arise in the mind of any one on the perusal of the above case, would be, first,—Did the patient take *arsenic?* and secondly, What *quantity* did he really take? Now, in answer to these natural queries, I must add, that a friend of the man had a few days previously given him a packet containing about *four ounces* of arsenic, for the purpose of destroying vermin; that this packet had been placed upon a certain shelf in the stable, and that the friend had seen it there unopened on the morning of the day of the attempted suicide. On the discovery of the attempt, this same paper containing the arsenic was found at the feet of the patient, he having dropped it on hearing some one enter his room, with only about *one* tablespoonful in it. This was immediately taken by the party who discovered it to a neighbouring chemist, who, unfortunately, after mixing it in water, and not knowing what it was, or its history, threw it away on some stones before his shop.

Now, here seems a tolerably clear account that the packet contained originally about *four ounces;* none had been used, as the patient afterwards informed me; that little had fallen in the room, as none had been noticed; and the small remainder leaves a deficit of between two or three ounces; and added to this, there is the firm assertion of the friend who had been with him, and gave him originally the poison, that the quantity at least taken was two tablespoonfuls; and the man himself says that he took all that was in the packet originally, with the exception of what was found afterwards. The quantity which was left was specified to me by the chemist and the man who took it to him, on several different occasions, as certainly not more than one tablespoonful.

Not feeling satisfied with this account, I thought some mistake must have been made with respect to the strength of the powder taken. I therefore had the powder which the chemist had thrown away upon the flag-stones before his shop collected, and through the kindness of Dr. Odling, of Guy's Hospital, who analysed it for me, learnt that it contained ninety-five per cent. of arsenious acid, the remainder being sand, which most probably was added by the scraping of the stones during the collection of the powder. Being, then, obliged to recognise the fact that at least two ounces of arsenious acid had been swallowed, the grand difficulty remains, to account for the mildness of the symptoms which a large dose of such an irritant poison would naturally be expected to occasion. Such a result I find quite unable to accomplish, and only suggest the question, whether the man, from his habit of habitual drunkenness, could so have thickened, and therefore rendered less sensitive, the lining membrane of his stomach, and thus have given more time for the means which were employed to rid that organ of its poisonous contents? Still this will not account for the absence of some symptoms which would have been expected, nor for the mildness of all those present; and I can only assign this case, as we are obliged to many others of different characters, to that class which we call anomalous.

REMARKS ON THE TREATMENT OF TYPHOID FEVER BY DISULPHATE OF QUINA.

By J. W. Hayward, Esq., Liverpool.

In a practice, private and parochial, of which I have had charge for some time, at the south end of this town, I made particular observations on eighty successive cases of fever of the typhoid type; and I found the first symptom, in twenty of them, was diarrhœa; in twelve, diarrhœa and vomiting; in seven, vomiting alone; the rest began with pain in the head. All had pain in the head afterwards; sixty-six describing it as "lightness," fourteen as "heaviness." All had tenderness of abdomen—nine to a great extent. Seventy-one complained of soreness of the flesh over the whole body—some to such an extent that their impression was that they had rheumatism. Seventeen had considerable inflammation of the sub-maxillary glands. Seventy-three had delirium, twenty-one of which were very severe. In all, the tongue became very dry, brown, hard, and cracked; the first crack was generally a deep, longitudinal one down the centre of the tongue, (even whilst it was clammy and velvety in appearance, and of a milk-and-water colour,) extending from the base to nearly the apex; then many transverse and oblique ones. In twenty-four, the skin became rough and brown, with petechiæ observable. In all, the thirst was intense; and the other symptoms of fever were not less evident; therefore suffice it to say they were well-marked cases of fever of the typhoid character.

In twenty-seven the treatment was commenced in the "first stage;" in fifty-three, in the "second stage." Three were fatal. All the rest recovered more or less quickly.

The principal treatment in all except one was the use of disulphate of quina,—so much recommended by Dr. Dundas, of this town,—of course modified according to the predominating symptoms. Thus, if I found the pulse quick, weak, and thready; the tongue cracked, brown, and dry, (rough or smooth;) great thirst and delirium; no appetite; tenderness of abdomen; soreness of flesh, &c., I put the patient upon disulphate of quina, in solution, at once; four or five grains every two hours. If great restlessness, and no sleep, I added three or four minims of tincture of opium to each dose. If general sinking of vital powers, some wine or brandy, with beef-tea. If the solution of quina were vomited, it was given in an equal quantity of wine, or wine-and-water. If the patient continued sinking, I increased the quantity of quina, but never had occasion to extend beyond seven grains per dose. When ringing in the ears occurred, the quantity was decreased, but still kept up till there was a good appetite. If the delirium was intense, the pain in the head described as heavy, (which were always strong subjects, whose bowels were confined,) with strong pulse, a dose of chloride of mercury, and sometimes a blister to the nape of the neck. If tenderness of abdomen was great, a few leeches, or sinapism. If vomiting, a sinapism over the stomach. If diarrhœa, a little calomel and opium, or diacetate of lead and opium; though this symptom sometimes required nothing more than the tincture of opium given with the quinine.

In seventy-nine cases, marked improvement was observable in the course of twelve hours: the pulse was the first to improve, then the delirium to give way, then the pain in the head, the thirst, the soreness of flesh, tenderness of abdomen, dryness of tongue, and the appetite to improve. A pulse of 120, small and thready, would become 90, softer and fuller; and in the majority of the cases the pain in the head and delirium ceased entirely in the same period, and a rapid improvement followed; with the small exception of two cases of children ten and eleven months old, neither of whom had the medicine regularly, and both were complicated with bronchitis. The eightieth case was that of a woman, in which quina was not used. These three died, evidently from typhus. If the typhoid symptoms were allowed to become well marked, and the patient to sink much, his recovery was slow, and he required wine or brandy. I feel confident, from personal observation, that were the disulphate of quina to be used promptly, and to cinchonism, the mortality even of typhus itself would be very small.

P.S.—The practice alluded to is that of Dr. Whittle, who wishes me to make this communication to you.

CASE OF

EPILEPSIA LARYNGEA SUCCESSFULLY TREATED BY TRACHEOTOMY.

By W. J. Mackarsie, Esq., Clay-cross, Chesterfield.

(Communicated by Marshall Hall, M.D., F.R.S., &c.)

To the Editor of The Lancet.

Sir,—I have always considered the case of Mr. Cane, published in my Croonian Lectures, as the most interesting and valuable in medicine; it preserved *life* threatened by the most imminent danger, and it has prevented all subsequent attacks of the direst epilepsy! Next to this, I must place the case I now forward you, of Mr. Mackarsie; the fits have hitherto been prevented, and the *mind*, which had been greatly impaired, and was further endangered, is recovering!

I am, Sir, yours obediently,

Grosvenor-street, Oct. 1852. Marshall Hall.

38, Grosvenor-street, Oct. 3, 1852.

My Dear Sir,—I am expecting with deep interest your promised account of your case of epilepsia laryngea (I suppose I may term it,) and tracheotomy. Pray send me a detailed *history* of its commencement and progress; noticing particularly the different forms which it assumes: the facts of trachelismus and laryngismus, &c.; the effect and influence of the tracheotomy—on threatening attacks if there have been any, and in preventing the attacks, &c. I wish particularly to know

I. The state of the face and neck, as to
  1. Colour.
  2. Tumefaction.
  3. Turgescence of veins;
II. The state of the respiration;
III. The state of convulsions, &c., and their dependence on trachelismus or laryngismus; &c.

I shall have great satisfaction in publishing the case, first, in The Lancet; and, secondly, in my next publication.

Excuse haste, and believe me, my dear Sir,

Yours, most truly,

W. J. Mackarsie, Esq. Marshall Hall.

Case.—Robert W——, aged forty, has suffered more or less from epilepsy for the last twenty years; he has been under the care of the most experienced of the faculty in Manchester and elsewhere, without deriving any benefit; he has within the last two or three years become much worse, having frequent fits almost every day, seldom passing two days without from two to three attacks; his mind latterly has become much impaired. Some months since I ascertained from his wife all the symptoms, and every minutia connected with the case:—When first attacked, evident symptoms of laryngismus are first observed and heard; he is then violently thrown to the ground, and continues for some time in violent convulsions; but whenever he can *freely inspire*, the fits cease, leaving him in a comatose state for some hours; his face generally is of a dark-brown congested appearance. His appetite is good, and all the secretions perfect, and were it not for the fits, he would enjoy good health.—I recommended, as advised by Dr. Marshall Hall, of London, tracheotomy as holding out a fair chance of great relief, if not of a permanent cure. His friends consented, and on Tuesday, 24th of August, I operated. I found the neck *very* short, the space between the apex of the cricoid cartilage, and the upper part of the sternum measuring little more than half-an-inch. I commenced the operation (in the presence of, and assisted by two of our best local surgeons) by making an incision from a little above the apex of the cricoid down to the sternum, through the skin and fascia; on arriving at the sterno-thyroid and hyoid muscles, I found them very prominent; the small vessels in the vicinity much engorged and enlarged, and more numerous than natural, the operation being much impeded by free oozing of blood. On separating the muscles from the mesial line, we found that before the trachea could be reached and cleared so as to apply the "tracheotome," we had to go to a very considerable depth. After much trouble, we retracted the parts sufficiently to admit the point of the instrument, which answered the purpose most beautifully, and will, I have no doubt, *in all* cases supersede the older mode of opening with the bistoury.

August 25th.—The patient has passed a comfortable night, a large quantity of mucus having passed through the tube.

26th.—Not so well; the patient has been hot and feverish, and passed a restless night; tongue furred:

pulse 100; a large quantity of mucus passing through the tube. No fit.

27th.—Rather better; bowels rather confined; pulse 100, full and hard. Calomel eight grains, scammony powder ten grains. No fit.

28th.—Improving; tongue still furred; mercury with chalk three grains, rhubarb two grains, night and morning; bowels acted freely.

29th to 31st.—Continued better till this afternoon, when violent hæmoptysis took place, but had ceased before I arrived.

September 1st.—Better; wound healing, appetite improved, and altogether in a favourable condition; still no return of the fits. In the evening a violent return of hæmoptysis. I examined the lungs, and found the left lung congested, dull on percussion, and the respiratory murmur feeble. I ordered the left side to be freely leeched, &c.

2nd.—He has passed a comfortable night; no return of hæmorrhage; expectorates bloody mucus; wound healthy; dulness on percussion not so marked, respiratory murmur more audible.

3rd.—Rather better; still bloody expectoration; ordered twelve more leeches &c.

4th.—Better; has passed a good night; pulse 90, soft; chest much improved; tongue clean; bowels rather confined; expectoration much lessened, and not at all tinged with blood. Aperient draught.

6th.—Continues better; pulse 75, soft; respiration free; dulness on percussion quite gone; bowels open; tongue clean; appetite improved; in all respects going on now most favourably. *No return of fits.*

He gradually went on improving till the 20th, when he had a severe attack of bilious vomiting, the irritability of the stomach being very obstinate; but with occasional doses of calomel and opium, with a saline effervescing mixture, and hydrocyanic acid, he in a few days recovered.

28th.—Much improved, complains of weakness, and is much reduced in flesh. I ordered a generous diet.

30th.—To-day much better; walks out, enjoys his food, sleeps well, and is now quite recovered, excepting complaining of slight debility. He states he has not felt so well for many years. *He has had no return of the fits.*

One thing in this interesting case I must not overlook: he has had several symptoms, or rather attempts of the fits to return, but they have only lasted for a few seconds. Had the opening in the trachea been closed, I have no doubt that he would have had them as severely as ever.

His *faculties* since the operation have much improved, and I believe, in time, he will so far be restored as to resume his usual occupation.

38, Grosvenor-street, Oct. 4, 1852.

My dear Sir,—I have received your *most* interesting and valuable case. I shall send our *correspondence*, and your case for The Lancet.

What do you imagine was the cause of the hæmoptysis and pulmonary apoplexy? Did it ever occur before? Is there disease of the heart, or of the lungs? Your case will excite much deep interest here.

I much wish to know *how* the *threatening* of the attack proceeds. Does the air escape or enter by the tube? Do you manage the tube readily?

Excuse haste, and believe me,

Yours most truly,

W. J. Mackarsie, Esq. Marshall Hall.

Clay-cross, Oct. 5, 1852.

Dear Sir,—I this morning received your two notes, and hasten to reply to them as far as I can. I can only ascribe the hæmoptysis and pulmonary apoplexy to the patient's getting out of bed and sitting before an open window, thus inspiring the cold air through the tube, without its being in that state of warmth in which it is when exhaled through the mouth. He had never suffered from anything even symptomatic of such an attack before. I cannot detect any disease of the heart, though, before the operation, he used occasionally to complain of palpitation, but that has entirely subsided since. The lungs now are perfectly healthy.

As I observed to you in my last, there have been one or two threatenings of an attack, characterised by apparent confusion and slight giddiness, but these have passed off almost immediately, leaving no ill effects. There were generally, *prior* to the operation, the first symptoms of a fit, and his wife never knew them occur *but when succeeded by a fit.*

I have found no difficulty with the tube since the first few days; indeed, the patient's wife now regularly attends to its removal, cleansing, and re-introduction.

It may be well to observe, that *since* the operation the countenance has undergone a complete change: *prior* to it, it was swollen, congested, of mahogany appearance, similar to that of a person who has resided for many years in the tropics; now it has assumed a natural hue.

I remain, dear Sir, yours very truly, in haste,

Marshall Hall, Esq., M.D. W. J. Mackarsie.

P.S.—The patient had a paralytic stroke three or four years since, but had quite recovered before the operation. His faculties, which *before* the operation were much impaired, have *since* much improved, and, I am sanguine enough to believe, that they will in time be quite restored.

Clay-cross, Oct. 8, 1852.

My dear Sir,—I can give no further information respecting my case, except that the patient continues free from fits, and that his general health is daily improving. When I can *clearly* ascertain whether he inspires or expires through the tube when the fits make an attempt to return, I will let you know.

I remain in haste, my dear Sir,

Yours very faithfully,

M. Hall, Esq., M.D. W. J. Mackarsie.

Clay-cross, Oct. 10, 1852.

My dear Sir,—I am glad to say that my patient still progresses, gaining strength daily. He has occasional *warnings* of the fits, but only for a *second or two;* the *predisposition* still existing, but *the opening in the trachea*, acting as it does like a safety valve, entirely frustrating *all these attempts.* I firmly believe he never will have another so long as he wears the tube.

Yours very faithfully,

M. Hall, Esq., M.D. W. J. Mackarsie.

ON STRICTURE OF THE URETHRA.

WITH A NEW METHOD OF TREATING THE DISEASE.

By W. J. Moore, Esq.,
Late Resident Surgeon at Queen's Hospital, Birmingham.

Having, during the last three years, paid considerable attention to diseases of the genito-urinary organs, particularly stricture of the urethra, I am induced to lay before the profession a means of treatment by dilatation, which, so far as I am aware, has never before been practised or proposed. Although so much has of late been said on the subject, it is generally admitted that all the varied plans now advocated are open to serious objections. The treatment by dilatation as ordinarily practised often fails; frequently a catheter of even moderate size may be passed one day, and on the next, owing to spasm, congestion, or subacute inflammatory action, no instrument can be used. Retaining the catheter in the passage is also unsafe; inflammation of the bladder, peritonitis, abscess, &c, not unfrequently arising. The caustic treatment is now almost universally deprecated. Professor Syme's plan is only applicable to certain obstinate cases, where the passage of instruments cannot be borne, or when such treatment has failed. The metallic stricture dilator, lately brought forward, is open to the objection of expanding more in the anterior part of the urethra than the posterior, in which latter portion of the passage it is evident the expansive force is mostly required. Mr. Wakley's instruments are certainly the best yet in general use, and have proved, in my hands, productive of much good; but the interior of the urethra is liable to suffer by the passage of the hollow tubes over the straight staff.

From a consideration of these and other circumstances, I came to the conclusion, that could a thin, expansible substance be introduced into the uretha, to serve as a sort of false lining membrane, dilatation might be practised to any extent by expanding, with a larger instrument, sound, or catheter, the expansible material already introduced. Under this impression, I applied to several manufacturers of gutta percha and India-rubber articles, and finally obtained some tubes from Messrs. Macintosh of Liverpool, which partly answered the purposes required. They were, however, too thick and clumsy in every way, so that it was necessary to have a new set prepared on a smaller scale. The material used in their manufacture is, I believe, a mixture of gutta percha and caoutchouc, with here and there a thread introduced for security and strength. The tubes themselves are rather longer than any ordinary catheter, and the smallest very thin, and of sufficient calibre inside to receive a small wire stilet. The stilet, thus enclosed in the expansible case, is carried through the stricture into the bladder; the wire is then withdrawn, and a larger wire, catheter, or sound, well oiled, passed in its stead within the expansible case already present for its reception. Thus dilatation may be carried to any extent without risk of producing laceration of the urethra, false passage, hæmorrhage, or other accident. A command of the passage may also be retained by allowing the flexible tube to remain, which may be done without risk of suppuration or irritation, for days together; the urine being drawn off once or twice daily by means of a catheter, the holes at the end of the instrument of course corresponding with other apertures at the extremity of the dilatable tube.

I feel assured of the efficacy of this mode of treatment, and of the value of the flexible tubes, from the results of several cases where I have used them, but think that the tubes may be made better than those I have used, and have given orders to other manufacturers for another set, composed of a somewhat different material; which, however, I have not yet been able to obtain. My object for thus bringing this forward now, is in the hope that some one with time, opportunity, and means, may be induced to take up the subject; as, being about to proceed abroad, I am obliged, for a time at all events, to give up the practical pursuit of this object.

It is incumbent upon me to acknowledge the valuable assistance I have received from Mr. George Yates, my successor as resident surgeon at this institution, during my experiments; and I may also state that he is now having made what he designates a railway guide—that is, a small staff with a groove on its under surface, into which other instruments fit, so that the small staff being introduced into the bladder, any larger instrument may be with certainty carried through the urethra.

⁂ Our correspondent is mistaken. The plan of introducing a membranous canal into the urethra has been tried on several occasions, and abandoned. The tubes and guide have now been used with complete success in a great number of cases, and without producing any bad effects in a single instance.—Sub. Ed. L.

PRACTICAL REMARKS ON DISEASES OF THE EYE.

By James Dixon, Esq., F.R.C.S.,

Surgeon to the Royal London Ophthalmic Hospital.

On the manner in which Cataract is developed in Elderly persons.

My object in the present paper is to draw attention to a point hitherto, it seems to me, but imperfectly considered, notwithstanding the vast amount of observation devoted, by so many eminent surgeons, to the subject of Cataract. I mean, the manner in which that opacity commences, and afterwards extends itself throughout the lens. Ophthalmic writers are, I believe, unanimous in describing it as beginning at the centre of the lens, and gradually spreading towards the circumference. They, indeed, describe "rare" cases, in which the opacity commences at the margin; and, under the name of "posterior capsular cataract," notice a "still rarer" affection, distinguished by deep-seated, radiating striæ on the hinder surface of the otherwise transparent lens.

Now, my own observations have convinced me that the striæ of (so-called) "posterior capsular cataract" and those which begin at the margin of the lens, are but the ordinary phenomena of the first stage of senile cataract. Tyrrell, indeed, affirms the deep-seated, streaky opacity at the edge and back of the lens, to be in that body itself, and not, as commonly described, in the posterior capsule, (vol. ii. p. 363;) but even he speaks of those instances as "*rare*, when the cataract commences from the circumference, and proceeds by radii towards the centre."

I can only account for the discrepancy between my own experience and that of the many distinguished surgeons to whom we owe our standard works on Eye Diseases, by supposing that, in doubtful cases of dim sight, they employed belladonna and artificial illumination of the lens less frequently than I am in the habit of doing. The progress of senile cataract is much slower than is commonly supposed, the opacity often escaping detection until, having involved the circumference of the lens, it encroaches on that portion which is visible through the natural pupil.

An elderly patient presents himself to the surgeon, complaining of some slight mistiness and indistinctness of sight. The iris may be active; the area of the pupil of natural blackness. Cataract will not suggest itself to the surgeon, if he be prejudiced by believing that it almost always commences in the centre of the lens; and he will probably regard the dimness of sight as altogether of nervous origin. But let him fully dilate the pupil with atropine, and then throw light upon each part of the lens in succession, by means of a convex glass of about one inch focus, he will perhaps find the whole posterior face of the lens covered with faintly yellow, opaque lines, radiating inwards from the margin, and, along the latter part, grouped together here and there into patches; or these marginal patches may exist at one or two points only, the hinder face of the lens being in great part clear. This would denote a still earlier stage of the disease. Or again; in addition to opaque patches at the edge of the lens, a few striæ may be traced along the front surface, stopping short of the border of the natural pupil. The anterior position of the latter striæ can of course be at once recognised by a practised observer; but it may aid the less experienced to be told that the opaque streaks of a cataractous lens are in themselves whitish. Those on the front surface, therefore, being viewed through colourless media—the cornea and aqueous humour—retain their white appearance; while those behind acquire a yellow cast, from being seen through the still transparent part of the lens.

This body is naturally colourless only during the earlier years of life. After the age of forty, it always assumes a pale-yellow tinge; and this continues to deepen as age advances, quite irrespectively of any change in its transparency. This fact, which I have repeatedly observed in recent bodies in the dead-house, is important to be borne in mind by the young practitioner who is investigating the disease of cataract.

As I have already remarked, some of our highest authorities on eye diseases, who have repeatedly seen the deep-seated, streaky opacity at the edge and back of the lens, believe it to depend upon disease of the posterior capsule. Tyrrell, although describing it as seated in the lens itself, does not assign any anatomical reason why opacities in that situation differ so essentially in appearance from those in the capsule. A knowledge of the microscopic structure of the two tissues, however, makes us at once understand why opacities in the capsule should be of an irregular, indeterminate figure, and those of the lens radiated: the capsule being a uniform, homogeneous membrane; the lens composed of fibres, radiating, on certain planes, with exquisite regularity.[*]

Whether cataractous opacity usually spreads from the centre of the lens towards the circumference, or from the circumference towards the centre, is—as the reader must readily perceive—no question of mere pathological nicety. It has an important bearing on diagnosis and treatment; for if the surgeon assumes that cataract almost always commences at the centre of the lens, he will frequently pass over cases of incipient concentric cataract, because no opacity is visible so long as the pupil remains in its natural condition. On the other hand, a knowledge of the frequency of concentric opacity will lead him, in all cases of dimness of sight in elderly persons, to dilate the pupil, and, by means of concentrated light, thoroughly to examine every portion of the lens.

If this be done, I am sure he will find that when cataract, *at an early stage*, is detected *in old persons*, (these two conditions are essential,) the relative frequency of marginal opacity, as compared with that beginning at the centre, will force him to come to the same conclusion as I have done—namely, that the former mode of development is the rule, and the latter the exception.

According to my experience, the following is the ordinary progress of what is termed "hard cataract." At first opaque streams appear at the extreme edge of the lens; most commonly the lower edge is first affected. These gradually spread themselves over the posterior face, a few only extending a short distance along the anterior face. The cataract may perhaps remain at this stage of development for a year or more; then the whole body of the lens becomes slightly hazy, but not so much so as to prevent the posterior, radiated opacity from being recognised.[*] Gradually the opaque streaks advance farther and farther along the anterior face of the lens, until they appear within the area of the undilated pupil. By this time the general haziness has increased so much that the posterior face of the lens is hidden from view, even when concentrated light is thrown into the eye; and the opacity, both the linear and the diffused, becomes denser and denser, until little more than the anterior surface of the lens can be seen. Cataract is then complete, and vision commonly restricted to mere perception of light.

I cannot expect (nor do I wish) that a mere assertion of mine, opposed as it is to the recognised teaching of the best authorities, should be at once received as true. In a future paper, therefore, I purpose laying before the reader a table of cases of incipient cataract, examined in the way I have already indicated, and with every precaution I could devise against an unfair bias in favour of a particular theory.

ON CARBUNCLES AND BOILS,

WITH ESPECIAL REFERENCE TO THEIR PREVALENCE AS AN EPIDEMIC.

By Thomas Hunt, Esq., F.R.C.S.,
Surgeon to the Western Dispensary for Diseases of the Skin, &c.

No. IV.

The *prophylactic treatment* (or measures to be taken for the prevention of the disease) is a question of universal interest, and one which cannot easily be settled by an appeal to facts, but must be deduced from analogy alone. It is impossible to prove absolutely that A would have suffered from the disease if he had not adopted certain measures, and equally impossible to demonstrate that B, who did suffer, would have escaped by adopting them. But as there are cases occurring in our criminal courts in which circumstantial evidence, as it is called, is even more satisfactory than absolute and direct testimony,—so, in the science of medicine, there are certain conclusions of which no one doubts the truth, which are not founded upon induction, but upon analogy—upon relations, resemblances, and general laws, which, when duly observed, satisfy the mind and determine the conduct just as readily as demonstration itself. In directing our inquiries into the question of prevention in reference to epidemics, we must take our stand in this broad region of generalities and analogies. We shall not escape the cholera by avoiding fruits and acids; nor will a low scale of diet exempt us from carbuncles or boils. We must consider the question in all its bearings; and, first, it may be worth while to reflect upon the circumstances under which boils and carbuncles become developed when they are not epidemic. They both arise from some general disorder in the system, but the condition is different in the two cases. The anthracic cachexia is chiefly developed in advanced life, and is usually preceded by some debility or defect in the assimilating organs. The furuncular diathesis, on the contrary, is more common in children and young persons. Both may be said to betray an unhealthy condition of the blood; but this condition appears to be brought about by very different causes. Boils are common when the system is in a state of transition, or under outward circumstances of change. Thus the appearance of the permanent teeth, the establishment of puberty, and the passage from adolescence into maturity, are respectively periods at which boils are apt to appear. And certain outward conditions of transition, such as change of diet, of residence, of employment, and even of dress, occasionally originate the eruption of boils. Carbuncles, on the other hand, attack the subjects of slow circulation, torpid habit, depressed vigour, and, in short, that condition of the system is favourable to their development which is as far as possible removed from the excitability of the transition state. They not unfrequently announce the breaking up of a system long wasted by intemperance, by residence in foreign climates, by toil and weariness, by the pressure of want, or the ravages of grief or care; whereas boils often precede a more vigorous rising of the tide of life, and are found among the signs of an approaching renewal of health and strength. These are the usual circumstances under which these diseases are observed to prevail when they are not epidemic. But the question here forces itself on our attention,—What is there *in common* among so much of contrariety in these morbid phenomena, that they should both alike prevail under an epidemic influence? One common element is very obvious: they both have an eliminative tendency; they constitute a mode in which the system by a salutary effort relieves itself of some morbid or poisonous influence;—an effort vigorous in the young and healthy, feeble and inert in the aged and sickly; but in both tending to the preservation of life.

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[*] I would not be understood as affirming that the posterior capsule never primarily becomes opaque. I only insist on the anatomical fact, that the regularly *radiated* opacity at the back of the lens is due to a change in the posterior layer of its fibres. I have seen in this situation, patches, of uniform density throughout, which I have believed to be in the capsule itself. In some cases they were eventually followed by extension of opacity to the lens.

Much valuable information on the subject of capsular opacities, and on cataract in general, will be found in a little volume "On Cataract, &c.," (Dublin, 1851, by Dr. Jacob;) written with his usual clearness and simplicity.

[*] It is hardly necessary for me to remind the reader that, even when a slight haziness is *uniformly diffused* throughout the lens, the opacity will *appear* densest at the middle, simply because the lens is thickest at that point.

The question of prophylaxis, then, resolves itself into two indications.—1. Avoiding the epidemic influence if possible. 2. Preparing the system to encounter the enemy on its attack. Of the first there is little to be said. This epidemic appears to have been both indifferent as to the locality of its attacks, and indiscriminate in the selection of its victims. But with regard to the preparation of the system, so as to enable it either to escape the virulence of the poison (if such it is,) or to meet it with vigorous resistance, there is probably much to be done. First, that scale of diet should be adopted which experience has proved best adapted to keep the system in full health and strength without overloading it with useless material. No tendency to congestion or plethora should be encouraged. An occasional purgative, active exercise in the open air, a moderate share of rest, due use of bathing, and, above all, a cheerful, active, and well-poised mind—these are the conditions most likely to resist the attacks of any epidemic, particularly the one in question. In addition to this, everything which may happen to be wrong about the health should be rectified as soon as possible. Costiveness should be prevented, headaches should be cured, hæmorrhages should be stanched, any irregularities of the female system should be corrected, and protracted lactation should at once come to an end. In addition to this, those persons who live in constant dread of epidemics should be admonished to take measures to get their apprehensions dissipated; to consult their medical adviser, who, if they require it, may possibly suggest something which may tend to prepare the system for the attack if it should really seize them; but, above all, to make use of the suggestions of common sense, which, whether guided by the dictates of religion or of philosophy, teaches that the dread of coming ills is, of all ills, the most afflictive, and that, when every reasonable precaution has been adopted, a trustful, quiet mind is the best protection for the body, just as it is the safest condition for the soul.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON, &c.

> Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tum aliorum proprias, collectas habere et inter se comparare.—Morgagni. *De Sed. et Caus. Morb.* lib. 14. Prooemium.

Now that our readers are acquainted with the introductory lectures which have been delivered in the different schools, and the excellent advice contained in them, and having also attempted a sketch of the best plan which the student of medicine may adopt for reaping the full benefit of the matchless opportunities he has at his command, we shall just offer a few words, in this exclusively nosocomial department of our journal, touching *clinical* instruction, and the best mode of profiting by it.

We cannot forbear, in the first place, expressing some exultation at the splendid field afforded for observation in the hospitals of this metropolis. Disease may here be seen in almost all its forms, as affecting every age; and, in proximity with the pathological phenomena to be observed in the wards, preparations are preserved in the museums, perpetuating, like historical documents, manifestations of a morbid character, as handed down by our predecessors in the thorny path of medical investigation. The valuable stores contained in hospital museums are in general not sufficiently studied and compared with the living specimens in the beds of the institution; and there is no doubt but the pupil would gain much by making himself familiar with the various forms of disease exhibited in the preparations, so as to fit himself for the inspections in the dead-house. If you see phthisis or fracture written over a patient's bed, go and look at the numerous specimens of united bones and tubercular lungs in the museum; if the patient's ticket bears the word apoplexy or hernia, go and look at the preparations exhibiting a clot in the cerebral substance, or a displaced portion of intestine or omentum.

It is also of importance for the pupils now and then to consult the case-books of the hospital, so that they may look over the records of diseases which have been treated in the institution, and are analogous or somewhat similar to those in the wards. We remember an hospital where the principal cases were regularly entered in books supplied with good indices; these books were deposited in the library at the end of each year, and formed valuable records within the immediate reach of the students. We recollect with gratitude the information we gathered from these archives during the first years of our own pupilage. Post-mortem reports are extremely valuable and are to be found in all hospitals; but it is also useful to keep the remembrance of cases which have been *successfully* treated. Nor ought it to be forgotten that the account of a post-mortem examination should *invariably* be accompanied by the history and progress of the malady.

We referred, a few sentences back, to tickets or cards over the patients' beds. On this head we cannot help lamenting, that in some of our large, as well as small hospitals, the place which should contain the name of the disease is left blank. We are told the name and age of the patient, the date of his or her admission, the name of the physician or surgeon, and even of the recommending governor, but the first-year's man looks in vain for a guide or assistance as to the disease, and, with some of his more advanced fellow-students, he remains perfectly in the dark, except he has the courage of constantly worrying his teacher with questions.

Two reasons have been assigned for this omission: one, that it is sometimes unadvisable that the patient or his friends should learn the name of the disease; the other, that the diagnosis might sometimes not be correct. The first objection is easily removed by the use of the Greek names of diseases; and when these have become too familiar to the lay portion of the community, it is an easy matter to use merely half the word or an initial, the full words being given on a table hung up in the students' room. Take consumption, for instance: here we might say, tuberculosis pulmonum, tabes pulmonum, phthisis, or merely Ph. For cancer of the rectum say carcinoma recti or carc. recti, &c.; whereas fractures, herniæ, and ulcers, defy concealment. As the words syphilis, chancres, and buboes are, unfortunately, too well known, write these words in the original Greek characters, and the difficulty vanishes, except the patient happen to be a destitute scholar.

The second objection, as to diagnosis, may be simply answered by stating that physicians and surgeons of hospitals cannot be expected to be more infallible than other men, and that their teaching is not less sound and valuable to the pupils for a slight error in diagnosis which may here and there occur. The first consideration is to convey as much knowledge as possible to the learner, and the latter should have an easy opportunity of becoming acquainted with our terms and pathological names at the bed-side of the patient. The attention of the first or second year's man is attracted by seeing, psoas abscess, corneitis, phrenitis, febris periodica, orchitis, hydrocele, ascites, gangrena senilis, delirium tremens, &c. &c., placed above the patients' beds, and he sees at the same time the general aspect of the diseases upon the patients before him. We should not omit to say that in some of our hospitals the student is never annoyed by the above-mentioned blank.

On the other hand, it happens now and then that the name of the disease is given in a loose, unclassical, and imperfect manner. We have met with the following appellations:—Inflamed shoulder, abscess, diseased skin, inflamed eye, ulcer, diseased bladder, chronic disease of the knee, abscess in hip, abscess in side. Now, what on earth is to be learned from these terms? The adoption of them can only be the consequence of an oversight, and is fortunately not the rule.

Pupils should contrive to attend pretty often in the out-patients' room, for there they will see a great number of the more ordinary kinds of ailments, the very ones which at the outset of their practice they will have to treat; and as the physicians and surgeons are ever ready to answer the questions of attentive young men, they may gather a great deal of extremely useful information. The only drawback is, that the cases cannot be regularly watched and followed up; but there is, on the other hand, a capital opportunity in the out-patients' department to acquire a readiness of prescribing.

Students will find it useful carefully to observe the cases of dislocation and fracture when first admitted, so as to become familiar with the deformity produced by these accidents; and they should, if not too painful to the patient, touch the luxated joint, so as to accustom the hand to the altered relations of bony processes. It will likewise be very advantageous to *see* the house-surgeon or dressers "put up" the fractures or luxations. Nor is it a bad plan for students to put rollers, and sometimes splints, either upon one another, or on a wooden arm or leg prepared for that purpose.

Pupils should refrain from allowing themselves to be too much influenced by the brilliancy of surgical operations; most of the latter are mere confessions of our inability to cure a great number of diseases, and it should be recollected that surgery is the practice of medicine aided by mechanical contrivances and some operations. Is there any difference in the treatment of traumatic or idiopathic meningitis? Is not peritonitis treated upon the same principles, whether it follow an operation for hernia or arise spontaneously?

But the study and comprehension of purely medical cases, require a certain amount of mental exertion, for analogies must be observed, inferences established, and reasoning be carried on, so as to build up a diagnosis upon the history and symptoms of the case. Nor should the pupil neglect the physical means which may allow him to study the symptoms with accuracy; for instance, percussion and auscultation, the chemical examination of the secretions, the microscope, &c.

Let, however, a first-year's man not attempt too much; let him look on, mark, and ponder at first, and become thoroughly acquainted with the *elements* of medical and surgical science. Let him freely ask questions of his teachers or senior pupils. One question well answered sometimes saves hours of reading.

Why are the surgical wards always more numerously attended than the medical? Is it because surgery is more tangible and plain? This is *partly* true: but the disproportion may perhaps be likewise attributed to another cause—viz., the great reserve of speech generally observed by physicians, (to this we know, however, one or two exceptions.) This occasional absence of didactic and encouraging words has much to do with the fact above cited. It is sometimes supposed that pupils prefer going round with the surgeons rather than with the physicians; but this is not quite correct. Perhaps medical cases would prove just as interesting, if their naturally less palpable nature were always made plain by elucidations and comments. This is done in various degrees in different hospitals, and we are confident, that, the more attractive medical cases are rendered by the physician's explanations, the more students will crowd around the beds where those internal affections are to be studied which are to come so frequently before them in practice. A great many surgical diseases are sufficiently evident of themselves—no distinct explanation or comment is necessary; but with medical cases the symptoms are to be minutely inquired into before they become apparent, and they must be carefully considered before a knowledge of the internal derangement can be arrived at. Here, therefore, explanations and comments are very acceptable, and they tend to fix the attention of the pupils upon such subjects as the physician thinks of importance.

We are the more inclined to hold this opinion, as we have noticed the train of pupils following the physician to be exactly in the ratio of the latter's greater or less disposition to impart the knowledge which he possesses.

A circumstance which has often struck various observers, is the disproportion between the number of medical and surgical beds in our metropolitan hospitals. Why are the beds for surgical cases more numerous than those in which the physician's patients are treated? The reason is not very obvious, except that accidents may have some influence on the fact, as also the reluctance of some persons, though suffering from external disease, to apply at an hospital; whilst the irksomeness of external affections, and the attention they require, in some degree drive patients to public institutions.

Some large hospitals have adopted the very efficient method of setting apart clinical wards (both for surgical and medical cases) especially devoted to instruction, and these are generally crowded with students. We remember a certain charitable institution where the physician made it a practice of dictating the prescription in clear and distinct Latin, and the pupils used, by this means, to acquire a very satisfactory readiness, at least as far as nomenclature and purity of diction were concerned.

We can also recollect an old physician who was in the constant habit of making the diagnosis of each fresh case a kind of *exercitatio*. He used to point out the symptoms one by one, and when these had been well ascertained and considered, he would ask one of the circle of students—" What affection have we here ?" And after this question had been answered, he would go on asking another—" Quid faciendum ?"

This same physician was always very careful of the students' time, and being ever at the hospital at the appointed hour, never kept the young men waiting in the staircases and lobbies. He had also another peculiarity which we may as well mention here. He took every opportunity of talking to the pupils of the cases he was treating in private, so that they might have some idea of managing patients out of the precincts of the hospital. He used to say that tact was a sort of gift, but he nevertheless pointed out to his young hearers the best manner of conciliating private patients, without going against duty or conscience; he gave them excellent advice as to their deportment in the sick room, and the manner of prescribing in cases where money is no object, and where economy should be studied. In fact he tried to fit them for actual practice, and remove from their path the stumbling-blocks over which many of us have fallen at the outset of our career, when, full of nosocomial experience and devoid of worldly wisdom, we entered upon professional life.

We have noticed in several of our large hospitals the excellent practice, after surgical operations, of explaining the nature of the cases to the pupils, and immediately exhibiting and dissecting the pathological specimens obtained from the operations. This custom is extremely beneficial to the pupils, and *should never be omitted*. Students are very liable, when present at operations, to commit a great mistake. Most of them retire from the theatre immediately one portion of the operation is over, without waiting to see all the steps until the patient is removed to bed; they forget that the taking up of arteries and dressing of the stump are matters of as great importance as making the flaps and sawing the bone. When an operation is performed within any of the canals of the human frame, or in any of the accessible cavities, the pupils are apt to take little interest in the proceedings. This is hardly wise; for by looking on they would become acquainted with the difficulties the surgeon has to encounter in these operative proceedings, and they would at least know what they have to master whenever they are themselves called upon to surmount obstacles of the same nature. And here we shall just mention that in some hospitals and schools, pupils are sometimes seen who, according to all appearance have not reached their sixteenth or seventeenth year. Now, it is painful to think how immature, unpractised, and insufficiently cultivated the intellect of these young men must be, and how thoroughly unprepared they are (as a rule) to dive into the various fountains of medical science which they are expected to fathom in three short years. It is self-evident that it would be well for such young persons to spend two or three years more in literary pursuits before they commence their medical studies, the mind being then properly trained and prepared for the ready apprehension of professional knowledge.

As to actual operations by young practitioners, it cannot be denied that some preparation is needful; it would thus be of great benefit if pupils, before finally leaving hospitals, were made to operate upon the dead body under the superintendence of their teachers. This peculiar training, joined to the habit of performing the minor operations in surgery, would be of great service to the incipient surgeons, whether practising generally or specially; for it should not be forgotten that a vast number of operations are performed in the country by the same class of medical men, who, though general practitioners, confine themselves in large towns chiefly to medical cases. Means might be found for giving students some mechanical skill, for teaching them to grasp and break up a stone within the bladder, to perform the lateral operation of lithotomy, to tie arteries, to cut down upon a hernia, to excise tumours, and to take off limbs; a little additional expense could hardly be thought of when compared with the benefit derived.

Whenever an opportunity occurs, students should make a point of plugging the nares in the dead subject, to pass instruments into the urethra and Eustachian tubes, to perform extraction of the lens, &c.; for *manual* skill is only to be acquired by *manual* exercise.

While ceasing to throw out from our " Mirror" any additional " rays" on this occasion, we venture to take advantage of the opportunity now afforded to us, for expressing our warmest feelings of gratitude to the medical and surgical officers of the metropolitan hospitals, for the assistance they have liberally rendered to us in the performance of our duty, and also for the commendations which they have profusely and generously bestowed on our humble labours.

GUY'S HOSPITAL.

Cysts of the Female Breast in communication with a Lactiferous Tube; Operation; Microscopic investigation.

(Under the care of Mr. Birkett.)

The anatomy, physiology, and pathology of the female breast, have of late years been elucidated by some of our most gifted surgeons, and there is reason to believe that their labours have rendered the diagnosis and treatment of the diseases of the mamma far more satisfactory than they formerly were. The microscope has certainly rendered great service in this respect; it has revealed the intimate structure of morbid formations, and its use has led to classifications and arrangements founded upon well-ascertained analogies and differences. But when the microscope has done its best, when its field has allowed us to pry into the most intimate textures and forms of healthy and morbid matter, we should not rest after having noted down what we have seen; but we ought to go further, and study, like truly philosophical observers, the nature of the vital forces that have given rise to the alterations which, with the assistance of our instruments, we can follow up to their minutest cells and fibrillæ. The more these vital laws are studied, the more it will become likely that many of the morbid manifestations, with which we are all familiar, depend on altered nutrition, influenced by external causes, and on the irregular or compensating application of the formative force. This is a fertile subject, to which we mean to recur, but we cannot refrain from briefly alluding in the present instance to the *compensating* force manifested in the morbid phenomena presented by the female breast.

It is plain that during the whole of the catamenial periodicities, there is a constant action going on in the great genesial cycle of Dr. Tyler Smith. Here the mammæ, ovaria, and uterus, through the medium of the spinal centre, are constantly acting in concert, but, as Dr. Tyler Smith justly says, "in certain parts of the catamenial cycle, the balance is first in favour of one organ, and then of another." ("Parturition and Obstetrics," p. 181.) It is clear that this *balance* may, in various ways, be disturbed, and it is not unlikely that by closely observing cases we may find that the morbid actions noticed in one or more of the organs composing the cycle, are the result of defective or irregular action in the other. Look at the cystic formations of the female breast; is it not very probable that they chiefly consist of increased action? And when the cysts are evidently connected with a lactiferous tube, (as beautifully shown by Mr. Birkett in the subjoined case,) is it not likely that the development of these cysts depends on some abnormal action of the tubes excited by irregularities in the two other organs of the catamenial cycle—viz., the ovaria and uterus? This is a mere hint to which we do not mean to attach more importance than it deserves, but we suspect that some advantage may sooner or later be derived from more closely studying the compensating actions going on in the human organism. We beg, in the meantime, to direct attention to the following case, lately under the care of Mr. Birkett, which offers an excellent illustration of this action, and settles an important question regarding the formation of mammary cysts.

A rather delicate-looking, strumous girl, aged eighteen, applied for relief at this hospital in September, 1851, on account of a very painful tumour in the left mamma. She was a servant-of-all-work, enjoyed good health, and her habits were regular. The catamenia had appeared between fifteen and sixteen, but had never been regular until lately, and always in small quantity. Both mammary glands were fully developed, and about a normal size.

Rather more than two years before applying to Mr. Birkett, she had observed a hard lump near the nipple. Neither of the latter appendages is very well formed, and from the left a yellow fluid sometimes escapes, but in very small quantities. Of this fact the patient did not speak until after the operation. On examination there was found, close to the nipple, a remarkably elongated, somewhat pointed, hard, and irregular tumour, and between its two elevated extremities was a depression forming the body of the new growth. These elevations projected slightly above the plane of the general surface of the breast; the entire mass fixed and imbedded in the gland, and both the former and the latter moved together.

The patient complained bitterly of the pain she experienced in the part, as also in the gland generally, and manipulation greatly added to her distress.

Mr. Birkett gave her alteratives, aperients, and tonics, strapped up the breast with plaster, and placed a suspensory bandage around the chest; but with the exception of temporary relief from pain, no permanent advantage was gained at the expiration of a month. The patient's general health improved considerably, but the local disorder remained unchanged.

Under these circumstances she was admitted into the hospital, and Mr. Birkett removed the tumour on October 21st. An attack of erysipelas protracted the recovery and interfered with cicatrization; but from this she recovered, and left the hospital about a month after the operation. The girl has since been frequently seen; the cicatrix is quite healthy, and her general health in no degree impaired.

The tumour and a very small portion of mammary-gland tissue had been removed at the above-mentioned operation. The growth was found extremely adherent to the gland, and extended completely through its thickness to the posterior fascia. The pressure made upon the tumour, just before commencing the incision, caused some yellow, glairy, tenacious fluid to exude from the nipple; the previous knowledge of the existence of this secretion would have rendered the diagnosis of the tumour more easy.

The whole mass of the new growth was composed of cysts containing fluid and intra-cystic formations. (see Fig. 1 in the engraving.) At that extremity of the tumour which was in close proximity with the nipple, a large and dilated duct was observable. After a small quantity of adipose tissue had been removed, the growth exhibited nothing but a congeries of cysts, attached to, and apparently developed from, a lactiferous duct. The two most prominent cysts were those felt beneath the skin before the operation. The smallest of these, which had been the closest to the nipple, proved to be a very thick-walled cyst, filled with a solid growth.

FIG. 1.

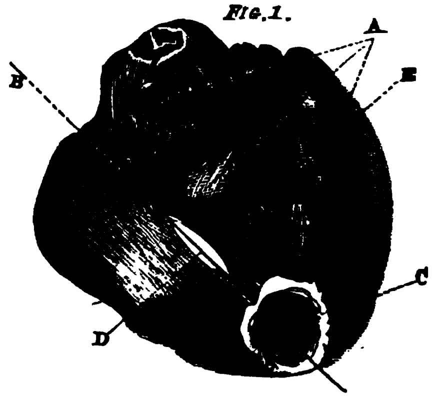

FIG. 1.—The tumour after the removal of the adipose tissue. A, unopened cysts; B, bristle passed through the duct D into C, a cyst cut open to show the growth within it. E, an opened cyst.

Mr. Birkett inserted a tube into the duct, and with some force was enabled to inflate the whole number of cysts composing the mass, thus demonstrating the uninterrupted communication between them. The walls of the cysts were of various thickness; some resembled a piece of parchment, others gold-beater's skin. The intra-cystic fluid was of the colour of amber, clear, viscid, and tenacious; it contained microscopic nucleated cells. Some of the cysts appeared to be entirely filled with solid growths, exhibiting the crenated, foliated, and characteristic appearances of the ordinary intra-cystic development. They were not very vascular, but of a yellow tint.

When examined by the microscope, these solid growths exhibited all the characters of the intra-cystic formations of the cysto-sarcomatous developments, or "proliferous cysts."

It is therefore, in this case, clearly demonstrated, that a disease of the mammary gland may exist, composed of cysts communicating with each other, and having an opening into them in connexion with one of the lactiferous tubes; and, moreover, that these cysts may contain solid growths, having the same external appearances, and composed of the identical elenents as the intra-cystic growths of the larger proiferous cysts.

Mr. Birkett observed that this case appeared to be almost identical with the one described by Sir. B. Brodie, ("Lectures, &c.,") and it illustrates the following statement of the author:—"There is reason to believe that these cysts" (membranous cysts in greater or less number) "are formed by a dilatation of portions of the lactiferous tubes." Mr. Birkett believes, however, that the present is the first example in which the nature of the growths developed in cysts so clearly in communication with (one might almost say developed from) the lactiferous ducts, has been demonstrated by means of microscopic investigation to be identical with the intra-cystic growths of the "proliferous cysts," so lucidly described by Professor Paget in his lectures.

FIG. 2.

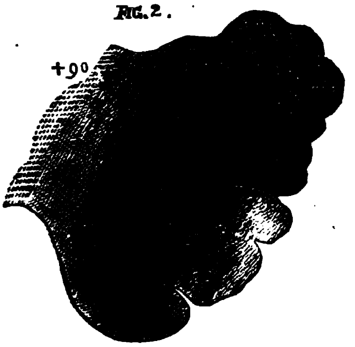

FIG. 2.—A portion of intra-cystic growth magnified 90 diameters.

FIG. 3

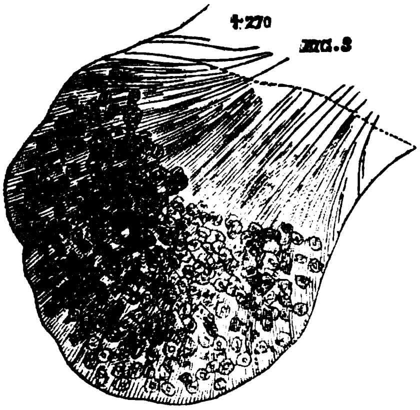

FIG. 3.—A single cæcal termination, exhibiting its minute structure.

Kick on the Abdomen; previous Reducible Inguinal Hernia; Anomalous Symptoms; Perforation of Intestines; Peritonitis; Death; Autopsy.

(Under the care of Mr. BRANSBY COOPER.)

THE surgeon must not only be fully acquainted with the principles of his art in order to practise it successfully, but he should also possess sufficient acumen to apply these principles with discrimination, and to distinguish the instances in which the generally-approved rules require some modification. The want of discernment is sometimes the cause of very unpleasant errors; and it is frequently felt by those whose powers of diagnosis are often called into request, that the practice of surgery would be easy indeed, if nothing were required but the ever-repeated application of a certain set of principles.

In the case before us, the diagnosis was somewhat difficult; the possibility of strangulation by "réduction en masse" was to be weighed against the likelihood of traumatic peritonitis; and as these lesions respectively necessitated a distinct treatment, it was very important that a correct view of the case should be taken. The perusal of the following outline will convince the reader that the solution of the problem was by no means easy:—

John E——, aged fifty-three years, was admitted into Luke's ward on the 8th of August, 1852, under the care of Mr. Bransby Cooper. The patient gave the following history of his case:—At about nine o'clock on the previous evening, while attempting to separate two men who were fighting, he received a very severe kick on the abdomen, a little below and on the right side of the umbilicus. His sufferings were intense immediately on the infliction of the blow; he soon felt a sensation of coldness all over his body, and broke out in a clammy perspiration. Mr. Evans, of the Blackfriars-road, saw the patient, and finding him in a state of collapse, ordered brandy-and-water, also hot fomentations to be applied over the whole abdomen.

About one o'clock the next day, he was brought into Guy's Hospital, still complaining of great pain in the seat of the injury, and a general tenderness over the whole abdominal region. The bowels had not been opened since the accident, but he had not suffered from sickness or even nausea. Upon examination, a small hernia was discovered in the left inguinal region; the patient stated that he had been subject to this hernia for three years, and that it had always been reducible. This latter assertion was proved at the time of the examination, but the tumour returned into the inguinal canal directly the pressure was removed. The abdomen was tender, though not particularly so, at the seat of injury, but the tenderness extended generally over its whole surface.

The patient was put to bed, a large poultice was laid over the whole abdomen, but leeches were not applied, as he could not be said to have recovered from his state of collapse. Two grains of calomel and two of opium were ordered to be taken directly, and a grain of each to be continued every three hours.

In the course of the afternoon, the man vomited a small quantity of bilious matter, and complained of nausea. In the evening, as he had not passed any urine since his admission, a catheter was introduced, and about six ounces only of healthy-looking urine drawn off. He took a small quantity of beef-tea, but abstained from taking much, as he said it increased the nausea.

Second day.—The patient has slept a little during the night; he says that he has less pain in the abdomen, but has not had any evacuation from the bowels. Tongue rather furred; pulse full, soft, and about 80; the calomel and opium have been continued; skin moist, and pupils only slightly contracted. A small quantity of urine has been passed without the use of the catheter. The calomel and opium was now ordered every four, instead of every three hours.

Third day.—The patient has spent a better night, but the bowels have not been relieved. The tongue is furred, and rather dry and brown; the pulse the same as yesterday. In the course of the morning he brought up a small quantity of what was considered stercoraceous matter, being slightly offensive; the urine is scanty, but normal in appearance.

It was now thought by some of the attendants that these symptoms might arise from the hernia, although reducible, being returned into the abdomen with its sac, by which it remained constricted; and at one o'clock Mr. Cooper was called to the case to determine upon the propriety of cutting down upon the hernia to ascertain whether or not its contents were strangulated. Mr. Cooper decided, however, upon not performing the operation, as, firstly, from the patient's own history, it was certain that he had been ruptured three years, during which lengthened period he had always been able most easily to return the hernia; he had therefore never worn a truss or suffered any interruption to the natural action of the bowels, even up to the very moment of his accident.

Secondly. Immediately on the infliction of the blow he had been seized with collapse, while it must be observed that the hernial tumour remained precisely in the same physical condition as before the accident: it was just as easily returned into the abdomen, and not more tender to the touch—indeed, it was less so than any other part of the abdomen. It was, however noticed, that when reduced, the swelling now remained a shorter time within the abdominal cavity; but that was perfectly explicable by the tympanitic state of the abdomen.

Thirdly. All the symptoms seemed more to resemble those of sub-acute peritonitis than those of hernial obstruction.

Mr. Cooper therefore gave it as his opinion that there was lesion of some abdominal viscus. He ordered the calomel and opium to be continued, and warm water to be applied to the feet, which had become cold.

Fourth dày.—The symptoms remained just the same; the patient had had some sleep during the night; pain in the abdomen much decreased, unless pressure were made, when the distress seemed more urgent than hitherto. Mr. Cooper requested Dr. Addison to see the patient with him. The result of the consultation was, that the lower bowels should be emptied by the administration of a gruel enema, and that the patient should suck small pieces of ice, to allay nausea.

Soon after the injection had been thrown up, the patient passed a thin watery motion of a light-brown colour, and extremely offensive odour. Shortly afterwards, he complained of great increase of pain, and became covered with a cold, clammy sweat; he had two other motions, and fell into a state of decided collapse. Brandy with hot water was ordered, but it produced no beneficial effect, and the poor man died at about ten o'clock in the evening.

Autopsy seventeen hours after death.—External appearances: Some marks of ecchymosis on the right and left ilium, but to an unimportant extent; body well nourished. On opening the abdomen, the small intestines were found matted together by recent adhesions, the peritonæum being in many parts deeply injected; and numerous puriform depôts were found between the coils of the intestines, which were prevented from becoming diffused by plastic adhesions. On gently separating the abdominal walls from the pubic region, fæcal matter and air escaped, and on a further examination, a considerable quantity of the same matter was found in a sort of cyst formed by the adhesion of folds of intestine. On examining one of these folds, an opening was found in a portion of the ilium, from which the fæces had escaped. Around this rent the intestine was deeply ecchymosed; the opening was larger on the external than on the internal surface, and its edges were smooth and clean, as if cut with a knife, the mucous membrane being everted through the aperture. At a short distance from the latter, there were found two small recent irregular ulcerations, and still nearer the termination of the ilium, there was seen a spot of extravasated blood, about the size of a crown-piece, close to the mesentery. Opposite to this point there were one or two other effusions of blood beneath the serous membrane.

The pelvis contained much puriform lymph; in the left inguinal canal lay a small portion of intestine, quite free from any constriction, and the internal ring would admit of the ready passage of the protruded bowel through it; the sac of the hernia partook of the general peritonæal inflammation.

Mr. Cooper, in making some remarks upon this case, said that, in practice he had laid it down as a rule, that when constipation is concomitant with a tumour, in the situation of a hernia, the swelling should always be explored, for the purpose of ascertaining whether or not it be the cause of the obstruction; and as a general axiom, he still held that such is the most correct view. As, however, no rule is without an exception, it was necessary that we should discover the instances when we ought to deviate from the rule, although in surgical practice it is sometimes not easy to discriminate.

In the case just quoted, the patient was suffering from constipation, sickness, and pain over the whole abdominal region; he had also a hernia which was reducible, although it could not be retained within the abdomen. This latter circumstance might have been caused by the hernia being returned *en masse*, the intestine still being constricted within the sac. Under such circumstances the reduction of the swelling could afford no relief, and an operation would still be necessary.

Taking the whole history of the case, however, Mr. Cooper was led to suspect that the hernial tumour had nothing whatever to do with the condition of the patient, as it had for three years been as easily reducible as at the time of the accident, and had never given rise to any disturbance in the natural function of the intestinal canal. Very urgent symptoms came on at once with the infliction of the blow; this was not of a character to produce obstruction in a reducible hernia, but, on the contrary, very likely to produce all the symptoms under which the patient was labouring, and which were those indicating lesion of some abdominal viscus.

The peritonitis, which was evidently present, could not have resulted from a sudden mechanical constriction, for it would in that case have been a consecutive symptom, whilst here it constituted a primary phenomenon. This had induced Mr. Cooper to hesitate before he performed any operation, feeling a great objection to opening a peritonæum already in a state of inflammation.

Believing that the condition of the patient might arise from rupture of intestine, he abstained from giving purgative medicines, and ordered opium, with the object of allaying irritation, checking sickness, and producing such a state of quietude of the intestinal canal as to encourage the process of reparation which would be set up by nature in an attempt to close the wound. But, as is too often the case in such accidents, the powers of the constitution were incompetent to sustain sufficiently her curative efforts, and the patient sank after the escape of the fæces into the peritonæal cavity.

ROYAL FREE HOSPITAL.

Irreducible Femoral Hernia; Severe Pain occasioned by the Truss; Removal of the adherent Omentum and a portion of the Sac by Operation.

Sarah P——, aged forty, married, and the mother of four children, was admitted, April 27, 1852, under the care of Mr. Gay, with an irreducible femoral hernia of the right side, about the size of a hen's egg.

The patient suffered, from time to time, great pain in the tumour, and was very desirous that some operation might be performed to give her relief. She presented much obesity, so that the herniated mass did not assume a defined outline, and merely produced a fulness in the right groin. On raising the leg, however, and passing the fingers deep into the groin, a hard and immoveable tumour was felt a little below the crural ring. The impulse on coughing was not great, and at the time of the patient's admission, she was not suffering from anything referable to the hernia.

This woman had been sent to the Royal Free Hospital by Mr. Webber, of Norwich, under whose care she had been. Mr. Webber, after a careful consideration of the circumstances of the case, had come to the conclusion that they were such as to justify an operation. The case had excited a good deal of attention, and as the patient was placed in a difficult position by the conflicting professional as well as friendly advice which she received directly and indirectly, it was thought wise to place her in a public institution.

The woman stated that the hernial tumour had existed for the last twelve years; she was not aware how the protrusion had occurred in the first instance, but the habit of standing many hours at the washing-tub might perhaps be regarded as an exciting cause. For the first two years no inconvenience was felt, but the tumour increased from the size of a filbert to that of a walnut. At this period the patient used to experience pain in the tumour on stretching the leg, and the part became so very sensitive, that she was not able to wear a truss more than one day. On several occasions a large quantity of bowel had come down, the abdominal symptoms being at the same time very severe. She had frequent attacks of retching, though she vomited but little; and these morbid manifestations were generally relieved by the taxis, which caused the tumour to return to its accustomed size. About five months before the patient's admission she had suffered from one of these attacks; the tumonr became very large, the pain and sickness very severe, and the symptoms of obstruction of bowels very alarming.

As it was feared that strangulation and various other unpleasant consequences might occur, Mr. Gay resolved upon removing that portion of omentum and of the sac which had produced so much inconvenience for a number of years. Mr. Webber's suggestion was to cut down on the sac, to reduce all the omentum that could be returned; then, after passing a series of sutures through the neck of the sac close to the ring, to dissect out the former with its enclosed omentum, leaving the ring plugged up by the latter. Thus it was expected that the neck of the sac would unite by means of the above-mentioned sutures.

These operative measures were, however, from the nature of the case, not completely carried out. On May 13th, Mr. Gay proceeded, whilst the patient was insensible with chloroform, to lay open the sac by the usual incision; by this means a considerable quantity of omentum was exposed the latter being firmly adherent to the inner surface of the sac. It was now thought expedient to remove both the protruding omentum and a portion of the sac to which it was adherent. In this manner Mr. Gay was enabled to return the remaining portion of omentum; and after several vessels had been secured, the parts were brought together by sutures. During the whole of the operation the patient was kept completely narcotized, and an hour afterwards she expressed herself as being very comfortable, the pulse beating 92.

Opium was now administered in considerable quantities, until the patient was fairly brought under its influence. She felt tolerably well the next morning; but in spite of the large doses of opium which she had taken, (ten grains in fourteen hours,) sleep had not been procured. The woman was now slightly sick; and as the opium could not well be pushed further, she was given twenty minims of tincture of henbane, in an effervescing saline draught, every fourth hour.

On the third day after the operation, the patient had slept about four hours during the night; the pulse had risen to 105—it was hard; the face flushed; the respirations 24; and some hiccup had come on. On deep pressure above the seat of the operation, some pain is complained of, but the wound looks qnite healthy and favourable. The sutures were removed on the fourth day, when the greater part of the wound was found united by first intention, that portion only remaining open through which the sutures had passed.

On the eighth day, the bowels had not acted; there was some restlessness; the countenance became depressed, and the skin slightly jaundiced; pulse 135, small and irritable; the lower part of the abdomen was now somewhat tender on pressure, and some fulness was felt on the right side. An enema of half an ounce of castor-oil and ten minims of laudanum, in a pint of gruel, was now administered; but it returned in a few minutes, without bringing away any fæcal matter. A second enema was given, containing an ounce and a half of castor-oil, but with no better effect. The patient now took an aperient draught, and had, soon afterwards, three copious and healthy evacuations. The wound continued, in the meanwhile, to progress favourably, the ligatures came away at different periods, and one of them remained firm until the nineteenth day after the operation. On the 12th of June, about one month after the excision of the hernial sac, the patient was so far recovered as to leave her bed, and walk about the ward. She gradually gained strength, and was discharged, about two months after admission, in a very favourable condition.

It is extremely probable that the above-mentioned operation has effected a complete obliteration of the femoral ring, and that no further protrusion will take place. If this supposition turns out correct, it will be worth while to give this mode of procedure some moments' consideration in cases of irreducible hernia, where the sac is principally filled with omentum. It cannot, however, be concealed that the risk of peritonitis, and all its consequences, is, by this direct operative interference, rendered very imminent; and that this circumstance would, with some surgeons, be quite sufficient to make them avoid the use of the knife. But it remains nevertheless clear, that the operation performed by Mr. Gay may end favourably; and we are thus in possession of an important precedent, which we have thought right to put upon record.

It should finally be noticed, that the symptoms of peritonitis were, in this case, treated with opium alone, without the aid of calomel; and that very large doses of the narcotic agent were administered. It is very probable that this example will be followed by many surgeons, in cases both of wounds of the abdomen and peritonitis; for it has now been repeatedly found that the sedative and antiphlogistic properties of opium are quite sufficient to subdue the peritoneal inflammation; and that it very satisfactorily controls the irritative fever which almost always follows operations upon the abdomen.

KING'S COLLEGE HOSPITAL.

Spasm of the Muscles of the Larynx, simulating Hiccup, and supposed to be excited by the presence of the Tænia Solium in the Digestive Canal.

(Under the care of Dr. Todd.)

The physician has now and then to treat convulsive affections of a distressing kind, such as tetanus, hydrophobia, catalepsy, eclampsia, &c.; and he has the sad consciousness that, in several of these, his art cannot ward off the fatal issue. Where, however, convulsive diseases are clearly traceable to an irritation producing spasms by reflex action, we feel confident that by removing the irritating agent we have a very fair prospect of conquering the abnormal symptoms. Hiccup is one of the most common and ordinary spasmodic manifestations of this kind, and it is strange that the origin of this act should still be veiled in obscurity. It is, however, very probable that the contractions of the diaphragm called hiccup, or singultus, are of a reflex nature; but the various causes which are likely to give rise to this reflex action have not as yet been clearly enumerated or classified.

Were our knowledge regarding hiccup more precise, there would of course be less risk of confounding it with other spasmodic expirations followed by sudden closure of the glottis, for the sound produced in the former and the latter is very much the same. We had lately a favourable opportunity of ascertaining the truth of this analogy in a patient under the care of Dr. Todd.

By an interesting coincidence it happened that we saw, a short time previously, in Dr. Burrow's ward, at St. Bartholomew's Hospital, a patient similarly affected; but there was this difference between the two cases, that the presumption of the hysterical diathesis was much stronger in the second than in the first.

It is not difficult to understand how uterine derangement should be connected with a spasmodic affection of the larynx, for this influence is made very familiar by the frequent occurrence of the globus hystericus. Nor is it less known that, even with the male sex, there is a distinct connexion between the organs of generation and the larynx, the voice being infallibly modified by the greater or less development of these organs. It will, however, be seen by the following details, obtained from Mr. Masfen, physician's assistant to the hospital, that the exciting cause of the singultus in Dr. Todd's patient, which was at first thought to be the presence of the tape-worm, is still somewhat wrapped in obscurity.

Mary R——, aged thirty-three years, the mother of two children, the youngest of whom is seven years old, was admitted April 14, 1852, into Lonsdale ward, under the care of Dr. Todd. The patient had always enjoyed good health until the present attack; but about six weeks before her admission she was suddenly seized, without any apparent cause, with what she describes as hiccup, and this state continued the whole of the time until she was received into the hospital.

The woman stated that, besides the hiccup, she had been troubled much with tape-worm, the presence of which did not, however, give her much uneasiness. Occasionally small portions of the parasite passed in the stools; the catamenia were regular, but the patient appeared thin and ill-nourished.

The so-called hiccup continued after the woman's admission, and prevented her from sleeping. On a careful examination, it became, however, evident that the convulsive affection was not genuine hiccup, inasmuch as there was no perverted action of the diaphragm. The affection consisted of very frequent and short acts of expiration, accompanied with a crowing sound; this sobbing or singultus appearing to arise from spasm of the muscles of the larynx, of the sterno-mastoid, the muscles connecting the larynx with the sternum, the mylo-hyoid, and scaleni muscles.

Dr. Todd, suspecting that these convulsive actions, might depend on some irritation caused by the tapeworm, directed, after the usual preliminary treatment, that the oil of male fern should be administered. This medicine brought away a considerable portion of the body of the worm, but not the head; and this evacuation did not produce the slightest visible effect on the laryngeal spasms.

The patient was then ordered nourishing diet and tonics, with opiates at bed-time, and a cold shower-bath every morning. The opiates procured rest at night; during sleep the respiration was normal, and the singultus absent. A few days after admission the symptoms were so aggravated, that Mr. Bridgewater, then physician's assistant, made the patient inhale chloroform. He removed the apparatus when the anæsthetic agent was just about producing its effects, and noticed that during the inhalation the spasm subsided gradually and soon disappeared altogether, the breathing becoming quite calm. But in less than five minutes the affection came on again. Under these circumstances Mr. Bridgewater resumed the use of the chloroform, but this time he put her under its full anæsthetic power. The breathing remained perfectly calm for about twenty minutes after the patient had ceased inhaling; but the spasm returned gradually as she recovered from the effects of the chloroform.

She continued much the same for six or eight weeks after her admission, having intervals of more or less freedom from the affection, the contractions being, however, now and then aggravated, and being attended with increased crowing sound.

On June 8th, about two months after admission, a blister was applied, covering the whole of the front of the neck from the chin to the sternum; and the vesication was kept open by savine ointment. Intense pain was now produced on every contraction of the laryngeal and neighbouring muscles; in a short time the singultus gradually subsided, and finally disappeared completely. The blister was kept open for nearly three weeks, at the end of which time it was allowed to heal. The spasmodic affection soon returned, however, and was quite as inveterate as ever. The pseudo-hiccup was very loud, it could be heard through the whole ward, and resembled in some degree the peculiar sound sometimes produced by turkeys.

A second blister was applied to the same spot on July 1st, about three weeks after the first, and with the same effect as before. The spasm and crowing sound entirely ceased, and did not recur till about a fortnight afterwards, when the blister had been allowed to heal.

Change of air being thought advisable, she was made an out-patient for a few weeks, with the understanding that she was then to return to the hospital.

Has the presence of the tape-worm anything to do with the pseudo-hiccup? Perhaps so; the head was not expelled, and it is difficult to say whether there is more or less of the body left behind. The probability, however, is, that the laryngeal affection is independent of the tænia. As to the effect of the blister on the neck, it presents a very curious fact, for it would at first sight tend to prove that the affection was feigned. But on a closer inspection, it will be found that the nervous energy of the surface being changed by the intense inflammation resulting from the cantharides, the reflex action could no longer be produced, since no primary impression, or a faint one, could be made on the nervous ramifications of the tegumentary surface. Still it remains a very instructive fact, that the spasmodic contractions ceased as soon as they could not continue without pain. We understood that this method of treatment had been resorted to by Dr. Murphy, of University College Hospital, with permanent success.

We alluded above to a case of this kind under the care of Dr. Burrows, at St. Bartholomew's Hospital. Here the girl was decidedly hysterical; the symptoms were just as well marked as in Dr. Todd's patient, but they soon gave way to the treatment in general use against hysteria. We often listened with peculiar interest to the clicking or crowing sound produced both by Dr. Burrow's and Dr. Todd's patients, and took great care to question them both very closely. The first evinced decided signs of hysterical eccentricities, whilst the second did not exhibit a trace of this peculiar diathesis. As to any deception which might have been practiced by either, we would unhesitatingly state our belief, that, as far as we can see at present, the effort necessary for keeping it up seems physically impossible.

THE MEDICAL TREATMENT OF THE LATE DUKE OF WELLINGTON.

Every event connected with either the life or death of the renowned hero and distinguished statesman, whose loss England now deplores, has become of more or less historical importance. Strange then is it that the exact period of the birth of the great Duke of Wellington should be still a matter of uncertainty, and that the immediate cause of his death should be a subject of doubt and discussion. As it is probable that The Lancet will be referred to by historians for correct information on the professional points that may become the subjects of their inquiries, the following narrative of the principal events connected with the recent calamity may be relied on as authentic.

The Duke of Wellington was supposed to be in his usual health until the morning of the day of his death; how far this opinion may be correct will subsequently appear. He had been engaged until dusk of the preceding evening in reading the report of the Oxford University Commission, and did not suspend his labours until compelled by inability to distinguish the print; having at the time noticed the light on the opposite coast, he observed that it was the "darkness," and not the failure of his sight, which caused the print to "bother" him. He dined heartily shortly afterwards, at seven o'clock, and took for dinner *mock turtle-soup*, *turbot*, *venison*, *and pudding*. As was his usual practice, he drank neither wine nor spirit. He retired to bed before ten o'clock, and during the night visited the closet. The appearances found there showed that whilst the functions of the bowels were healthily performed, the Duke, contrary to his habit, must have returned hastily to bed, probably in pain. His Grace's valet, Mr. Kendal, who called him at his usual hour, shortly after six o'clock, observed that his master was not well, and that his breathing seemed oppressed. His Grace not appearing disposed to get up, his attendant, after remaining some time in the room, left him until half-past seven o'clock. Returning at this time he was directed by the Duke to send for "the apothecary." This he (Mr. Kendal) immediately did, and Mr. Hulke, of Deal, was in attendance about nine. He found his Grace complaining much of *pain across the chest, and at the pit of the stomach. His tongue was furred; he had distressing eructations, and his pulse was irregular.* It was intimated by Mr. Hulke, that he would send a draught, and he recommended that his Grace in the meantime should take a little warm tea and toast. Kr. Kendal endeavoured shortly afterwards to act on this recommendation, but the Duke seemed unable to swallow the tea. He became sick, and threw up a portion of the *venison* which he had taken the evening before. This piece of meat had not been altered in appearance by the process of digestion. A general convulsive attack ensued, of some minutes' duration. After the fit, the Duke to some extent recovered his consciousness. He laid on his back, his favourite position when in bed, with his hands clasped, and placed at the back of his head, his eyes occasionally following persons in the room. Mr. Hulke was immediately sent for again, and speedily returned, accompanied by Dr. M'Arthur. His Grace had another, but less severe convulsive attack, between eleven and twelve o'clock. Further medical assistance was sought for from London, and telegraphic messages were sent to Dr. Hume, who had long been the medical attendant of the Duke, to Dr. Robert Ferguson a friend of Dr. Hume, and to Dr. Williams, who alone of the three happened to be in town, but who, unfortunately, did not arrive till the Duke had for several hours ceased to live. This lamentable event occurred a few minutes before half-past three o'clock.

After the first convulsive attack, the Duke's exhaustion rapidly increased, and his breathing became much embarrassed; he had slight twitchings in one arm, but no paralysis. When an effort was made to give him either medicine or drink, his Grace generally exhibited reluctance to take it, pushed away whatever was offered to him, and showed his usual dislike to be interfered with. The treatment employed consisted of a mustard poultice applied to the pit of the stomach by the valet; a mustard emetic, partially administered, and without action; a dose of calomel and small quantities of stimulants were offered to the patient, but were not swallowed. For some time before his death, his Grace had been removed to a chair, to relieve the difficulty of breathing; but the medical attendants finding that his pulse, already extremely feeble, became, in that position, still weaker, his Grace was again restored to the recumbent posture.

Such, then, appears to have been the progress of the short and fatal illness of the great Duke of Wellington—an illness that terminated so calmly, that not an expiring movement was observable by the medical attendants.

Let us seek, from this history, to discover the cause of the terrible calamity the nation so deeply laments.

It must, in the first place, be remembered, that the atmosphere of the sea-coast, when at all cold, causes, in the aged, or in debilitated persons, more or less accumulation of blood in the internal organs, and more or less consequent impairment and irregularity of their functions. During some days preceding the 14th of September, the day of the Duke's death, there had been a hot midday sun, a considerable wind, chiefly from the north, and the evenings and nights were cold and chilly. The thermometer, on the night preceding the fatal event, was only six degrees above the freezing point; on the preceding day it had been up to 92°. No precautions were taken to obviate the effects of such a change on the aged and necessarily weak system of the Duke; and the pallor of his countenance observed on the preceding Sunday, showed that this influence was telling on the circulation. The stomach was thus ill prepared to receive a hearty dinner; and the difficulties of that organ were further increased by receiving a considerable quantity of food imperfectly masticated, in consequence of the Duke's loss of teeth. Nor was the process of digestion promoted, or the powers of the stomach and heart invigorated, by the use of stimuli. The stomach therefore contained a mass of undigested food, and became distended with flatus; the functions of the lungs were impeded; the heart's action was disturbed; the nervous system participated in the morbid processes going on; and as a child would have convulsions under similar circumstances, so had the Duke of WELLINGTON, who, becoming exhausted by the disturbed and enfeebled condition of his nervous and circulating systems, rapidly sunk and expired. Why or wherefore such an attack should be called "epilepsy," we are at a loss to conceive. The certificate of death, at least as it has appeared in the journals, is not correctly expressed.

The subject of the treatment afforded to the Duke has been fully discussed; but it is hardly fair for those who were not present, and therefore ignorant of the difficulties met with, to condemn it. We shall not refer to what was done or what was left undone, but briefly state what, under the circumstances as represented, might have been done. We have already alluded to the risks which changes of temperature, more especially on the coast, entail on the feeble and the aged; we need not say how they may be watched, and their effects obviated. There is no question that these influences were exerted over the Duke of WELLINGTON, a man in his 84th year, who was habitually careless as to external impressions, and who studiously avoided wine and spirit. Aged persons, whose digestive powers necessarily participate in the subdued energies of the constitution, ought to be careful as to the quantity and quality of the food they customarily consume. Great neglect on these points must be attended with annoying, if not dangerous consequences. Nor should it be forgotten that weak stomachs' after a hearty meal, are assisted in their functions by the moderate use of mild stimuli.

It is probable that had the Duke's stomach been relieved by vomiting in the early part of the morning, he would now be with us; it is even possible that such an effort, if successful at nine o'clock, might have saved him; but every hour added to the exhaustion, and rendered such an act more difficult. Under such circumstances, that is to say when stimulants cannot be given by the mouth, stimulating and nutritive lavements should be administered; and these may be rendered anti-spasmodic in cases where convulsions exist. Support in such cases is essential, for though the stomach is occupied by the mass of food, none is digested, none enters the system, which literally sinks from exhaustion and the irritation and disturbance of the nervous system caused by undigested food in the stomach, itself a mechanical obstacle to the free action of the lungs and heart. An effort should be made to support the circulation,—which, during the night, more or less languishes, as the respiration becomes slower during sleep,—and to determine the blood to the surface by general and continued frictions, and by mustard footbaths, the body being kept in that position which will cause the least exhaustion of the powers of life.

The principles which directed and governed the great Duke of WELLINGTON will not be without their influence on individuals in every sphere and class who read attentively the details of that eventful life which has given volumes to history, the most remarkable either ancient or modern. Neither will the closing events of that life be without a moral. The strongest constitution cannot be roughly handled with impunity—advancing age must bear with it the impression that it does not possess the powers of youth; and those who have to administer to sickness and suffering must remember that all, in this respect, are equal—and that rank, dignity, and grandeur, should not produce a degree of timidity in the medical practitioner that would allow a duke to die undisturbed, while the life of a plebeian would be saved by an apparently harsh, but prompt and decisive action.

SPECIALISM IN MEDICINE.

THE medical philosopher, reflecting upon the extraordinary phase through which medicine is passing in the present age, must be struck by some singular anomalies with respect both to our science and art. It would appear as though all practice and science were in process of Analysis, resolving themselves into elementary conditions, with a view to some future Synthesis. From the date of the very first division of professional labour into medical and surgical, and the formation of a class of mental and of manual labour, the subdividing and specializing process has continued, until, in these latter days, medicine, surgery, and midwifery, are little else than three great systems of specialties.

The development of these systems will hereafter be looked upon as the prime medical characteristic of the present century, by the professional historian. We cannot be indifferent to this state of things, for in no country or generation has it proceeded at a more rapid rate than in our own. Let us stop for a while to examine these tendencies, with reference both to their present bearings and their ultimate results.

Among the first specialties which arose, insanity holds a principal place; and midwifery, now raised from a specialty to a department, having itself many subdivisions, is another striking instance. But, in the early dawn of scientific medicine, professional cohesion was so loose and uncertain, that the first specialties speedily, in a great measure, passed away from the profession, and became the domain of the brutal keeper and the ignorant midwife. This loose professional aggregation tended very much to prevent the formation of specialties. The consequences of separation were so mischievous, that the profession found its only safety in holding well together. It was probably the danger of professional segregation which made the great father of physic denounce the lithotomists of his day, and caused him to swear his disciples against that now important specialty. But as medicine proceeded in strength and development, the danger we have referred to vanished, and men now boldly enter upon special paths of study and practice without any fear of separating themselves from the interests or sympathies of the profession as a whole; indeed, the more special the practice the more readily can the practitioner arrest the attention of the profession and the public.

By a curious paradox, the pure physicians—those who in theory protest with the greatest energy against the deteriorating influences of specialism—are, in practice, its greatest defenders and exponents. In truth, medicine itself has, of of late years, been greatly dwarfed from its old proportions by constant separations, and the irruptions of other classes of the profession. But in her purest aspects she is spotted and covered by specialisms. Every internal organ of any consequence finds the special devotee of its diseases in the roll of the College of Physicians. There are brain men, liver men, lung men, heart men, stomach men, kidney men, uterine men, bowel men; men devoted to fat, to fibrine, to tubercle, and to cancer; there are now physicians specially devoted to special disorders of special organs, at every point dividing and subdividing medical research and practice to a degree which fifty years ago would have been thought utterly destructive to the profession of medicine.

In surgery, the same thing obtains. Indeed the use of the knife is in some danger of becoming a specialty. Here we have orthopædists, ophthalmists, aurists, dentists, lithotomists, lithotritists; men devoting themselves specially to the pathology of the urethra, the bladder, the testis, the jaw, the cranium, the skin, and every other important organ and tissue which surgery can possibly claim. Some are great in dislocations, others in fractures, others in syphilis, others in special operations of greater or less magnitude. Only a very few are daring enough or able enough to attempt more than one or two organs or classes of surgical disorders, and thus become general practitioners in surgery.

And so in midwifery. On gives himself up to the ovary, another to the uterus, another to the breast, another to the cervix uteri alone. Some are accoucheurs, some are the attendants upon children, and some the special waiters upon the special maladies of special organs connected with generation; so that a woman passing from the commencement of pregnancy to the completion of weaning, might very well be placed under several hands. But we are afraid we must already have wearied our readers by a catalogue so Homeric.

Concurrently with these specialties in men, we have specialties in our institutions. In all our great metropolitan hospitals, except in one or two which do not move with the spirit of the age, provision for special cases are made to some extent, and special officers are appointed. We scarcely need point to our numerous hospitals and dispensaries for Consumption, Asthma, Insanity, Skin Diseases, Syphilis, Cancer, Diseases of Women, Lying-in Hospitals, Diseases of the Eye and Ear, Deformities, Diseases of the Rectum, Small-pox, Fever, Diseases of Children, Idiocy, Deaf-Dumbness, Blindness, Spinal Diseases, Scrofula, and others which might be enumerated. From the crown of the head to the sole of the foot, there is scarcely a square inch of the body which has not its particular followers; and hardly a single organ which has not its public building erected to the honour and service of its diseases and their treatment.

We may find the cause of this state of things partly in a great analytical spirit which is abroad in the profession, and partly in the wants and habits of the public, in an age when the subdivision of labour is carried to an extent hitherto unexampled. The public, whether rightly or wrongly, will refer from the arrangements which obtain in other matters, to the condition of the profession. The watch is made, not by one hand, but by a great number of workmen. Each bit of delicate machinery is the work of different hands, and sometimes the smallest mechanical wheel or fibre is the result of the labours of two or three artisans. As a whole, such a watch is more perfect, its precision more exact, and its production cheaper, than a watch constructed in any other way would be. The tendency to subdivision of work is so strong, that persons obtain handsome incomes for skill in the most minute particulars. One person is paid generously for being a judge of the colour of indigo or vermilion, another for smelling the flavour of tea, and a third for tasting wine. Prices are put upon the cultivation of particular exercises of the special senses. Though the human body is not a watch or a steam-engine, and though the man who would rectify one point must comprehend something of the whole, the public follow the usage of the time, and have the tendency to prefer special to general talent. Of course, mistakes sometimes occur which tell against the public taste. A skin eruption is cured, and the patient gets epilepsy. Young girls in phthisis, with arrest of the catamenia, are treated for amenorrhœa; and the patient with vicarious hæmoptysis is treated for tubercle. These and some similar penalties are, no doubt, paid for the advantages of specialism. We cannot quite boast of reaching the civilization of ancient Egypt, when the patient died just as each specialist pronounced the particular organ under his care to have been cured; but we may be in danger of proceeding towards such a ludicrous and unpleasant consummation.

Let us turn, however, to the benefits of the present condition of medicine. From the results already gained, we may hope that great good will eventually accrue both to pathology and treatment from the devotion of particular inquirers to particular subjects. It opens the gate to much empiricism, but to much improvement also; and let us hope that the latter element may prevail. It is of no use to ignore the truth, but we should rather prevent, so far as may be possible, evil developments, and encourage those which are sound. To prevent the rank luxuriance of specialism, the least the managers of our great hospitals can do is to see that within their walls all that can fairly demand attention shall be provided for. If there be evils in the prevailing rage for specialism, it has certainly been aggravated by the exclusive and narrow conduct of certain institutions. To illustrate what we mean, we need only contrast two of our most important hospitals, Guy's and St. George's. At Guy's, besides ordinary medicine and surgery, there are, we believe, wards for obstetric cases, diseases of women, eye cases, insane cases, disorders of children, skin diseases, and disorders of the teeth. At St. George's, there is only the solitary announcement that one surgeon attends to diseases of the eye twice a week! Had all our hospitals been moved by the wisdom of Guy's, there would have been less scope for the abuse of specialties and special practitioners. But specialism cannot always prevail. It is assuredly only a state of transition. With proper control on the part of the profession, we may hope that hereafter, when the various parts of medicine and pathology have been improved as far as possible by specialism, all the departments of practice may unite into something like a perfect whole.

But the prevalence of specialism appears to us to be the strongest argument which could be adduced in favour of ONE FACULTY, or at all events of one entrance to the profession, through which all should pass, whatever might be the paths into which they might choose to diverge. We should then have some guarantee against partial education, and a point of union to serve against the tendency of specialism towards professional weakness and segregation. Without this, we shall soon have, as in America, demands for special colleges and special educational institutions and examinations, for those who are preparing for specialties. Already we have too many interests and parties in the profession, and we require some check to them, such as can only be found in a bond of union between the entire profession. At present, this is found alone in some of our Societies—not in all; for the highest—the Medico-Chirurgical—refuses its presidency to any but what is called a pure physician or a pure surgeon. It would be of the greatest importance if the spirit of unity could be transferred from our Medical Societies to our Medical Colleges. Our limits do not allow us to enlarge further, but we trust we have said enough to bespeak attention for a very momentous subject.

THE RECENT OCCURRENCE AT BETHLEHEM.

BETHLEHEM is singularly unfortunate. A state lunatic, or, as some would call him, a "criminal lunatic," has made a furious homicidal attack upon one of the keepers, which is not unlikely to have a tragical result. This same patient, WHEELER, whose horrible destruction of his mother by severing the head from the body not long since appalled the public mind, had previously to that shocking catastrophe been a patient at Bethlehem, whence he had been discharged on the solicitation of his mother; and not, as it appeared at the judicial investigations which followed, in consequence of the restoration of his mind. It is reported that "WHEELER managed to gain access to a cupboard where the tailors' goose-irons were kept, and taking one of them, came behind HOOPER, the keeper, and attacked him in a most desperate manner, inflicting a very extensive cut on his head, and so disabling him in other parts of his person that doubts are entertained of his recovery." We notice this doplorable occurrence for a reason which appears to us of the highest importance. It is such events as this that are eagerly seized upon by the advocates of mechanical restraint, as affording irresistible evidence of the necessity of controlling homicidal lunatics by strait-waistcoats, manacles, and other instruments of physical coercion and irritation. An appeal to the uninformed public, backed by such an example, is sure to meet with sympathy and approbation. In the interest of the insane and of humanity, it is our duty to expose the fallacy of such an argument, and to deduce the true moral from this sad event. We know not whether the authorities, or the new medical superintendent of Bethlehem, would yet lay claim to the perfect establishment of the non-restraint system in that institution, but we are too well acquainted with the lawless system which recently prevailed, not to entertain considerable doubt that the substitution of one system for the other, of brutal violence for gentle sympathy, can yet be consummated. We are still, therefore, in doubt whether the case in question is one which is to be represented as having occurred under the system of restraint or of non-restraint. Keepers who but recently were accustomed to half-strangle the patients with a tourniquet to induce them to eat or to dress, cannot be expected, on so short a notice, to have become the most fitting agents of a system of which gentleness and forbearance are the most essential qualifications. We say this without meaning the smallest reflection upon the unfortunate keeper who has been assailed; he may be a most humane and intelligent person. But even if this be established, it will not in the least degree impair the force of an observation applied to the entire management of the hospital. In giving up the system of physical coercion, it is clear that the physician must be prepared to substitute a corresponding and equivalent control over the moral faculties and affections of his patient.

If it were necessary to substantiate the view we have taken of this melancholy case, we would again insist upon the fact that WHEELER had been a patient at Bethlehem some years ago, that is, at a time when the manifold abuses recently proved flourished in unrepressed luxuriance, when there could be no pretence for saying that the non-restraint system was carried out. Whether cured or not, the discharged lunatic bears away with him a vivid sense of the treatment he has experienced in the asylum he is quitting. WHEELER carried back with him to Bethlehem the memory of his former treatment. Bethlehem and violence had probably become inseparably associated in his disordered mind. There is no resentment so indiscriminating or so lasting as that of a madman, for there is no other that is not tempered by reason. Those who have had any experience in the treatment of the insane will understand the difficulties attending the sudden change from one system to the other. It is one of the most painful results for which the authorities of Bethlehem are responsible, that the pernicious effects of the neglect and the brutality long tolerated in their institution do not terminate with the introduction of a more wholesome régime, but must for many years to come continue to exert a baneful influence upon many whose misfortune it was to fall under their hands in evil days.

DRUNKENNESS AND ITS CURE.

THERE are but three grand calamities in this life, says a Chinese proverb—to lose your father in your youth, your wife when you are in middle age, your son when you are old. Whether EPIMETHEUS, when he opened the box presented to him by PANDORA, guided the flow of evils and distempers which issued therefrom in the particular direction of this happy isle, we cannot say; but this is certain, that without wishing to appear more unfortunate than our friends of the Celestial Empire, we are unable to circumscribe our afflictions within the narrow limits set down in their aphorism. Indeed, if the opinions of many Englishmen were sought, the catalogue of severe disasters to which we are liable might be made to fill a volume. Amongst the most prominent of these would doubtless be set down that to which we now wish to direct attention—the curse of having a drunken relative, of having a near, and, as far as such a one can be, a dear relation, slowly, but certainly, committing suicide by the abuse of alcoholic liquors. There are probably but few medical practitioners who have not witnessed the gradual but certain descent into depravity and degradation—who have not seen the ruined homes, and the dire misery entailed upon the families of those who, having yielded themselves to the power of the demon Alcohol, are unable to break from their bondage. We are not now about to dilate upon the physical evils which result from this slavery; it is useless to draw attention to its certain consequences—delirium tremens, insanity, the drunkard's liver, or dropsy; neither are we going to consider the question in a moral or ethical point of view. What we especially wish to consider is the question so frequently put to us by the friends of these misguided victims—Are there no means of cure? It is almost needless to say that in these cases medicine is powerless; advice, warnings, accounts of death-bed scenes, make but a temporary impression; the aid to be derived from religion is unthought of and unsought; and former vows of abstinence are disregarded. The advocacy of total abstinence, in fact, to the class we are considering, is a folly, and is regarded by them as an impossibility. It is not that they are unwilling to throw off their bonds—nay, they are in many cases most anxious to do so; but they find, when too late, that they have bound themselves in fetters they are unable to rend. While under the strict control of others, many of them are safe; but remove the authority for ever so short a time, and they relapse:—they dare not, they cannot trust themselves.

We think then that it is a point deserving the most serious consideration of all who wish well to their fellow-creatures, whether any good might be done by the formation of establishments somewhat similar to those licensed for the reception of the insane, in which inveterate drunkards might be taken care of for a certain space of time, the duration of which must be determined by experiment; and the endeavour made by education, by cultivating the moral faculties, by kindness, and other means, to wean them from their suicidal habits. That many would submit, of their own free will, to the control and authority which would exist in such institutions, we think requires but little proof. Our readers doubtless remember the story related by Mr. DICKENS, in his "American Notes," of the workingman who presented himself before the inspectors of the Philadelphia Prison, and earnestly requested to be placed in solitary confinement, giving as a reason for his extraordinary demand, that he had an irresistible propensity to get drunk, which he was constantly indulging to his misery and ruin. His application being refused, he applied again and again; when, fearing he would qualify himself for admission, he was made to sign a statement to the effect that his incarceration was voluntary, and was then locked up in one of the cells of the prison; it being at the same time intimated to him that the officer in attendance had orders to liberate him at any hour of the day or night that he chose

"In this cell," says Mr. Dickens, "the man who had not the firmness to leave a glass of liquor standing untasted on a table before him—in this cell, in solitary confinement, and working every day at his trade of shoe-making, this man remained nearly two years. His health beginning to fail at the expiration of that time, the surgeon recommended that he should work occasionally in the garden; and as he liked the notion very much, he went about this new occupation with great cheerfulness. He was digging here, one summer day, very industriously, when the wicket in the outer gate chanced to be left open; showing, beyond, the well-remembered dusty road and sun-burnt fields. The way was as free to him as to any man living, but he no sooner raised his head and caught sight of it, all shining in the light, than, with the involuntary instinct of a prisoner, he cast away his spade, scamped off as fast as his legs would carry him, and never once looked back."

We regret that this history is incomplete. Who does not pity the unfortunate man? and who does not wish to learn whether the solitary imprisonment of two years acted as a cure? The information might prove instructive.

From these remarks we fear it may be thought that our sympathies rest only with the sot. This is not the case: we have no hesitation in saying, that while, mindful of the weakness of human nature, we pity the drunkard, yet our chief commiseration is extended to his friends and relatives—to those who suffer so undeservedly, yet so severely; and we rejoice, therefore, that the plan we have so curtly suggested possesses the two-fold advantage of attempting to reclaim the criminal, at the same time that, for a season at least, it relieves the kinsfolk from that depressing care and harassing anxiety, the extent of which can only be known to those who have been taught by endurance.

Reviews and Notices of Books.

Report of the Proceedings of the Pathological Society of London. Sixth Session. 1851-52. Foolscap, 8vo., pp. 390. London: Bentley & Co.

The present is decidedly the best, as it is considerably the largest, volume yet published by the Pathological Society. It contains the history and description of nearly one hundred and thirty specimens of disease, with several illustrative plates, and such observations as the history of each case, or the character of each specimen, suggests. The names of the authors of these observations comprise some of the oldest and most distinguished members of the profession, as well as of those by whom eminence cannot fail to be acquired, when they engage themselves in the pursuit of that knowledge for the cultivation of which the Society has been founded. We observe, too, that the present volume contains several "reports" of great value on specimens assigned for special examination to members whose pursuits qualified them more particularly for that duty. The results appear to be so satisfactory, that we hope to see the plan continued and still further extended. For the Society itself, we had anticipated much success. There was abundant room for its operation, and we saw from the first that the workmen were all that could be desired. Still the success realized has been beyond our anticipations, for the Pathological Society has already taken a first rank amongst the learned Societies of the metropolis; and we feel confident that, with proper management, a high position will be maintained.

Facts and Observations on the Physical Education of Children, &c. By Samuel Hare, F.R.C.S., &c. 8vo., pp. 71. London.

Mr. Hare's work is sufficiently commonplace, and is written chiefly for the public. Many of the directions which are laid down, however, may be advantageously followed; but some of his plans of cure are too purely mechanical.

A Commentary of Medical and Moral Life; or, Mind and the Emotions considered in Relation to Health, Disease, and Religion. By W. Cooke, M.D., &c. 8vo., pp. 304. London: Longmans.

The chief of the subjects discussed by Dr. Cooke are as follow:—The material instruments of mental and moral action; temperament as modifying the mind and emotions; the distinct emotions, and their relation to health, disease, and religion; mind and the emotions influenced by states of body; mind and the emotions as a medical agency in the relief or cure of disease; and the concluding chapter briefly considers the preceding subjects in relation to the duration of life and life insurance. Though the subjects here enumerated are treated on the whole with some ability, yet, in a matter surrounded with so much difficulty, it is not to be wondered at that the author sometimes goes out of his depth. We regret to observe also that he occasionally becomes offensively canting and conceited. In what may be called the more speculative part of his work, Dr. Cooke is less happy than when he has to treat practical points. Notwithstanding these serious drawbacks, Dr. Cooke's treatise will repay perusal, especially the chapter on the duration of life and life insurance.

Handbook of Natural Philosophy and Astronomy. By Dion. Lardner, D.C.L., &c. Second course. 8vo., pp. 456. London: Taylor and Walton.

This part of Dr. Lardner's excellent work contains sections on heat, common electricity, magnetism, and voltaic electricity, and is illustrated by upwards of two hundred engravings on wood. This work will be found to supply that information relating to physical and mechanical science which is required by the medical and law student, the engineer and artisan, by those who are preparing for the universities, and, in short, by those who, having already entered upon the active pursuits of business, are still desirous to sustain and improve their knowledge of the general truths of physics, and of those laws by which the order and stability of the material world are maintained. To the above numerous classes we recommend the "Handbook."

Practical Observations on Diseases of the Lungs and Heart. By ARCHIBALD BILLING, M.D., F.R.S., Fellow of the Royal College of Physicians, &c. 8vo, pp. 138. London, 1852.

Lectures on the Physical Diagnosis of the Diseases of the Lungs and Heart. By HERBERT DAVIES, M.D., Fellow of the Royal College of Physicians, Senior Physician to the Royal Infirmary for Diseases of the Chest, Assistant Physician to the London Hospital, &c. Small 8vo, pp. 288. London, 1851.

Practical Remarks on Palpitation and other Functional Diseases of the Heart. By JOHN CALTHROP WILLIAMS, M.D., Fellow of the Royal College of Physicians of Edinburgh, Visiting Physician to the General Lunatic Asylum near Nottingham, &c. Second Edition. 8vo., pp. 207. London, 1852.

The Nature, Symptoms, and Treatment of Consumption; being the Essay to which was awarded the Fothergillian Gold Medal of the Medical Society of London. By RICHARD PAYNE COTTON, M.D., Assistant Physician to the Hospital for Consumption, &c. 8vo, pp. 286. London, 1852.

THE genius, enthusiasm, and industry of the author of the imperishable treatise, "De l'Auscultation Médiate, ou Traité du diagnostic des Maladies des Poumons et du Cœur," have been so frequently discoursed upon by authors and critics, that it may almost appear a work of supererogation again to dilate upon that discovery by which Laennec for ever holds mankind his debtors. As the highlander, however, will not pass the cairn of his former benefactor or friend without adding a pebble to the tumulus, in grateful remembrance of favours received, so do we find it difficult to peruse Lectures, Observations, or Remarks upon Auscultation and Percussion, without our thoughts reverting to those days when, at the Parisian Hospital Necker, Laennec commenced that series of observations which enabled him, as he tells us, "to deduce a set of new signs of diseases of the chest, for the most part certain, simple, and prominent, and calculated, perhaps, to render the diagnosis of the diseases of the lungs, heart, and pleura, as decided and circumstantial as the indications furnished to the surgeon by the introduction of the finger or sound in the complaints wherein these are used." But although we are now, one and all, only too happy to recognise the truth of this prediction, yet it was not so in the years 1818 and 1819. How the facts brought forward were disputed, the inferences denied, and the stethoscope laughed at, are circumstances only too well known; and there is but little doubt, that had the work from which we have quoted been written in a manner less excellent, or had the results drawn from repeated observation been less conclusive, Laennec would have shared the same fate as Avenbrugger, and auscultation, like percussion, might have waited for a Corvisart to introduce it to general notice.

It must not be imagined, however, that Laennec removed all the impediments, or solved all the difficulties, that surrounded the idol he set up. His death in 1826, in the forty-fifth year of his age, prevented his doing much more than clear the way, and indicate the right path for research. Much remained to be done, and even now there is still much to accomplish. Happily we can boast of men whose chief desire appears to be to remove the existing obstacles.

The work to which we have assigned the second place on our list, consists of a course of lectures originally delivered at the Royal Infirmary for the Diseases of the Chest, and which, as intended by their author, are well adapted for the use of students, the principal facts relating to the theory and practice of auscultation being concisely and clearly arranged. So highly, indeed, have they been valued abroad, that many of the earlier discourses, first published in THE LANCET, have been translated into the German language, and form the groundwork of a text-book for the pupils of the University of Bonn. To Dr. Davies also belongs the merit of drawing particular attention to the labours of Professor Skoda, of Vienna, whose opinions on certain auscultatory signs appear likely to become familiar in this country by a promised translation. The work commences with some remarks on the statistical returns of the deaths from chest complaints, followed by a few observations on the anatomy and physiology of the thoracic viscera. The author then proceeds to the consideration of the means by which thoracic diseases are to be detected, and reviews in detail the subjects of spirometry, inspection, mensuration, palpation, succession, percussion, and auscultation. In the several lectures thus occupied, there is of course much that is purely elementary, and which consequently requires no notice from us; and it is not indeed until we arrive at the section devoted to the examination of broncophony, that we find anything calling for comment. In treating of the auscultation of the voice, Dr. Davies adopts the views of Skoda, and agrees with this celebrated auscultator in his opinion that the original sounds are increased by consonance; he differs from him, however, in ascribing a greater conducting power to solid than to spongy lung. Speaking of the theory usually adopted by writers in this country, he says:—

"The waves of sound, which descend from the larynx into the bronchial tubes, become gradually diminished in intensity with the progressive division of the bronchi; and whatever amount of vocal vibration exists in any of the smaller passages is prevented from reaching the thoracic parietes, by having to traverse a quantity of healthy air-containing lung. Supposing, however, that the pulmonary substance around the tubes becomes consolidated, homogeneous, and consequently a better conductor of sound, the vocal vibrations will be transmitted with facility to the chest-wall, and become audible over the consolidated lung. This view is, I believe, correct, to its fullest extent; but I cannot consider it sufficient to explain the entire phenomenon of morbid bronchophony: simple conduction can never cause the abnormal bronchophony to appear louder than the voice of the patient, heard at the larynx, or issuing from the mouth; nor can it account for the disappearance of the sound, and its re-appearance after the patient has freely expectorated. And again: if homogeneity be a condition of good conduction, how does it happen that 'bronchophony cannot be regarded as a sign of pleurisy, with effusion?—at the stage of effusion, with dilatation of the chest, all vocal resonance has ceased,' (Walshe). On the other hand, consonance is a principle admitted by writers on acoustics; and it is an indubitable fact, that a column or mass of air enclosed within smooth channels, will reciprocate to a sound produced by a vibrating plate, cord, or another column of air. We see that the bronchial tubes, or artificial cavities, surrounded by air-less lung, present conditions favourable for reciprocation, and afford an easy explanation, by the doctrine of consonance, of the remarkable intensity of the voice, frequently observed in certain diseased conditions of the pulmonary organs."—pp. 90, 91.

Such is the theory now advocated by Skoda, Zehetmayer, and others, and with which our readers should be acquainted; at the same time, it is proper to mention that its soundness is disputed; while Dr. Billing only alludes to it in a brief note, because, as he confesses, however amusing, he has found no utility in it. Passing onwards, we find the commencement of the next lecture devoted to the consideration of Ægophony, a sound closely allied to bronchophony, and which, like it, has given rise to much discussion. Thus, it was the opinion of Laennec, that ægophony never exists without the presence of a thin layer of fluid in the cavity of the pleura, and that it is caused by the resonance of the voice in one or more of the larger bronchial tubes, which have become compressed by the effusion; the voice in its descent into the bronchial ramifications becoming peculiarly altered on entering the flattened tubes, and obtaining its trembling character from having to traverse the thin edge of the fluid. Dr. Davies points out several objections to this theory, and adds that Skoda

> "Has detected ægophony as well when fluid was present in the pleura as when it was absent; that he has found it in pneumonia, and in cases where the parenchyma was infiltrated with tubercular matter."—p. 100.

He then quotes the opinion of this same author, to the effect that this remarkable modification of the voice is a form of bronchophony, caused by the reaction of the walls of a bronchus traversing consolidated lung, upon the consonating vibrations produced within it; but considering this theory untenable, Dr. Davies states:—

> "I am inclined to the belief, that tenacious secretion of some kind answers the purpose of a vibrating tongue in the bronchial tube, or tubes, in which the sound is produced, and that ægophony is consequently a species of bronchophony, accidentally modified by this circumstance. We may, therefore, infer consolidation or compression of the pulmonary substance to be the conditions indicated by this sound; and we may add that a slight amount of effusion of fluid in the pleura, while it favours the consolidation of the lung, is also capable of diffusing the ægophony in the manner in which it has been stated to be occasionally found."—p. 101.

We must confess that this explanation is, to say the least, as unsatisfactory as Laennec's, though not so difficult to credit as that proposed by Skoda; and we cannot but think that if it were true, the pure bleating kind of ægophony, far from being the most rare of physical signs, would be really the most common.

Passing over several pages of interesting though familiar matter on the abnormal alterations of the respiratory murmur, the author comes to the consideration of some of those knotty points concerning the mechanism of the heart's action, the attempted solution of which has given so much trouble to physiologists. But we have not space to go into these speculative questions.

One point to which attention is directed, is the nature and mechanism of the heart's impulse against the chest-wall, which our author attempts to explain on certain principles advocated by Skoda. When we mention, however, that in this explanation an analogy is drawn between the heart and a sky-rocket, we trust our readers will allow that we have said sufficient to excuse us from entering upon the discussion, if not quite enough to satisfy their curiosity.

The physical signs of cardiac diseases, as presented by inspection, palpation, percussion, and auscultation, are then discussed—including under the latter head an inquiry into the causes of the normal sounds of the heart. In speaking of these sounds, we learn, that from the time of Laennec to the year 1851, attempts have been made to explain them in at least twenty-nine different ways. We regret to add to this discouraging statement, that Dr. Davies does not by any means solve the difficulty, but, by advocating the opinions of Skoda, materially increases it; for "this skilful auscultator considers—

> "(1) That the right and left ventricles, the aorta and pulmonary artery, combine in the formation of these sounds.
>
> "(2) That of the systolic sound, one portion is due to the ventricles, and the remainder to the origin of the great vessels.
>
> "(3) That in a normal condition of the heart, the synchroneity of the causes which produce sound in the heart and large vessels, causes the two portions to be blended together into one sound.
>
> "(4) That in disease a separation of the two portions respectively due to the right and left side of the heart, becomes evident to the ear. Thus, in organic disease of the aortic valves, their first and second sounds are replaced by a double murmur; but normal systolic and diastolic sounds may be heard over the valves of the pulmonary artery; and a normal systolic sound (I imagine due to the stroke of the heart against the ribs) over the apex of the organ.
>
> "(5) That the ventricular first sound is due to the stroke of the apex of the heart against the chest-wall, the sudden tension of the auriculo-ventricular valves, and the impulse of the blood upon their tense surfaces during the closure of the orifices to which they correspond. (To these causes, I believe, the bruit musculaire should be added.)
>
> "(6) That the arterial first sound results from the suddenly increased tension of the coats of the aorta and pulmonary artery, produced by the shock of the blood impelled upon them.
>
> "(7) That the ventricular sound is either the second sound propagated from the semilunal valves, or the result of the shock of blood against the ventricular walls, and the sudden disengagement of the apex of the heart from the opposed pericardium.
>
> "(8) That the arterial second sound proceeds from the vibrations of the valves of the aorta and pulmonary artery, rendered tense by the sudden recoil of the blood upon their upper surfaces."—p. 235.

We trust that the rising stethoscopists will master this *rather* complex theory, as it may be said to possess at least this advantage—that it contains all the hypotheses that ever have been advanced, though we are afraid it hides, as in a maze, the probably correct explanation. Before making further remarks, however, we would introduce to the notice of our readers, the "Practical Observations on Diseases of the Lungs and Heart," by Dr. Billing. For the publication of this work, Dr. Billing has apparently had two prominent motives; the first, to simplify the practice of auscultation and percussion; the second, to advocate more forcibly than he has hitherto done, his valvular explanation of the cardiac sounds: and it is but due to this gentleman to say that we regard his present volume as one of great value—as one tending to increase those obligations which we already owe to him for the "First Principles of Medicine." We are not about to analyze this volume; the space at our disposal will not allow of our doing so. We prefer proceeding at once to the remarks upon the heart's sounds, as affording the best commentary upon the views of Skoda and Davies.

"The natural sounds of the heart," says Dr. Billing, "are nearly similar to each other; the first occurs with the beat (systole) of the heart, the second immediately after. They are caused by the valves, which, being membranous, each time they resist the reflux of the blood, are thrown into a state of sudden tension, which produces sound."—p. 8.

And again, after a brief discussion of the views of Laennec and Dr. Hope,—

"In health there is no '*bruit musculaire*;' the cause of the first sound being slightly longer than the second consists merely in the difference of the forms and attachment of the valves. The semilunar valves being inserted into circular rims, and themselves quite free, are tightened instantaneously; the ventriculo-arterial valves, with irregular margins, and attachments to carneæ columnæ, are not so instantaneous in the check, and therefore the sound is a little longer and less sharp."—p. 10.

These opinions were published in THE LANCET twenty years ago; but their author states that he has still to support them against Gendrin, Skoda, Williams, Joy, Carpenter, Blakiston, &c., and that they have, moreover, been frequently misrepresented. In fact, it would appear as if the new school of auscultators prided themselves upon making the explanation of these sounds as difficult as possible, unmindful of the axiom of Newton, that "more causes than are true or sufficient ought not to be assigned."

Leaving this discussion, however, and making a long stride onwards, we would briefly mention, in relation to the venous murmur of the jugular veins, that Dr. Davies endeavours to prove its independence of any abnormal condition of the blood; and shows that though present in those conditions of the system marked by an impoverished condition of the circulating fluid, yet that it is not an anæmic or chlorotic murmur, inasmuch as it has been observed in a large number of cases in which there was the most perfect health. His explanation of it is—

"That the rapidity of the blood in the large veins is usually sufficient to establish a friction capable of causing a sound, which is more or less audible according to the readiness with which the parietes take up the vibrations, and the facilities with which the latter are conducted to the outer surface of the body."—pp. 283, 284.

It is unnecessary to say much concerning the "Practical Remarks" of Dr. Calthrop Williams, except that they are so truly what they are represented to be—so very practical—that no medical man possessed of ordinary capability can fail to have learnt all that is set down in the volume. Of the essay of Dr. Cotton we can speak favourably. It is a careful *résumé* of the principal facts in the history of the disease of which it treats, and was thought worthy, by the Medical Society of London, of one of the Fothergillian prizes.

The opinion has lately been promulgated, by two journals devoted to analytical and critical reviews, that medical men cannot be expected, as a body, to attempt the introduction of sanitary improvements; for, as they live by disease, they are said naturally to reverse the words of the proverb, and prefer cure to prevention. That this is a false and narrow-minded view of the conduct of the practitioners of the present day, we have before shown; and it is with some degree of pride that we appeal to the pages of this journal generally to refute so malignant a statement. We have been led to speak thus by some excellent observations of Dr. Cotton on the influence of occupation as regards the production of phthisis. He says:—

"It is lamentable, but true, that the wild beast in his captivity leads a life which offers a contrast to his natural habits scarcely greater than does the artisan, who labours from sunrise to sunset in his gloomy workshop, or the female domestic in her London kitchen. The forgotten responsibilities of employers make them, unwittingly perhaps, but scarcely on that account less culpably, the disseminators of disease. How many workrooms of our metropolis remain a disgrace to every feeling of humanity!—in numbers of them, even in the sunniest day, the cheering light of heaven scarcely finds an entrance, and the atmosphere, deprived by respiration and combustion of every vivifying principle, is hardly ever changed. Thousands of the youth of both sexes annually leave their country homes to become the occupants of these dismal abodes, oftentimes for as much as fourteen or sixteen hours daily; and after a few months', or it may be a few years' service, unequalled in its moral and physical consequences even by the most rigid system of slavery, terminate their career, a prey to phthisis, and perhaps, also bequeath it to another generation."—p. 65.

In bringing this notice to a conclusion, we would only add that we regard the three works to which we have more particularly directed the attention of our readers, as eminently calculated to remove many of the difficulties which surround the subjects they treat of; and although we have ventured to dispute some of the arguments put forward by Dr. Davies, we have done so with hesitation, remembering the motto affixed by Zeuxis to a painting—"It is easier to criticise than to execute."

The Journal of Psychological Medicine and Mental Pathology. Edited by FORBES WINSLOW, M.D.

THE principal contents of this, the twentieth number of Dr. Winslow's journal, are, articles on Homicidal Monomania, a curious chapter on German Psychology, the Statistics of Crime, the Law of Lunacy in France, and on American Institutions for the Insane, with several other contributions of great merit. The number of the journal sustains the high character which it has so long enjoyed.

A Manual of Elementary Chemistry, Theoretical and Practical. By GEORGE FOWNES, F.R.S. Fourth edition. Revised and corrected. 8vo., pp. 681. London.

This edition of the well-known work of the late Mr. Fownes, has been edited by Dr. Jones and Dr. Hofman. The book has been entirely revised. Considerable additions in organic chemistry have been made, and some of the chapters have been re-written, particularly those on the alcohols, the organic bases, and colouring matters.

The Cyclopædia of Anatomy and Physiology. Edited by R. B. TODD. Part XLIII. Longman, Brown, and Longmans.

THIS part of the above work contains the conclusion of the article Voice, by Mr. Bishop; the Anatomy of the Wrist-joint, by Dr. McDowel; the Abnormal Anatomy of the Wrist-joint, by Dr. Adams; and a supplement on the Ovum, by Dr. Allen Thomson. As usual, the part is illustrated with numerous well-executed engravings.

On Corns, Bunions, and In-growing of the Toe-nail. By T. J. ASHTON, Surgeon to the Blenheim Dispensary. 8vo,. pp. 82. London. 1852.

MR. ASHTON makes in this little volume a laudable effort to rescue from the hands of one of the most notorious of all the varieties and forms of quacks and quackery, the treatment of the painful affections to which the above title refers. Sir B. Brodie and Mr. Key have thought these subjects not undeserving their attention, and both of these gentlemen have contributed several useful observations thereon. Of these observations Mr. Ashton avails himself, and he adds many further illustrations from his own dissections and practice. The little work, on the whole, is one which cannot fail to be useful to the practitioner, enabling him to spare many of his patients much inconvenience and suffering; not the least, that of the pocket, when submitted to the jugglery and shams of the "corn doctors."

Miscellaneous Correspondence.

OBSERVATIONS ON THE IMPULSE OF THE HEART.

To the Editor of THE LANCET.

SIR,—Allow me to add the following observations on the impulse of the heart to those already published in THE LANCET.

On visiting Vienna last April, Professor Oppolzer kindly pointed out to my notice a case of pericarditis, in which the pulsation of the pulmonary artery in the third intercostal space was very distinct to the feel, and also visible. On going to the hospital the following day, it occurred to me that this must be a valuable case with reference to the impulse of the heart. On examination, in consequence of the boy's heart beating so quickly, and several students coming at the same time to the bedside, I deferred the further examination till the next morning; but as I stood looking at the chest, the alternate rising of the third and fourth intercostal spaces was most distinct. On the following morning, however, the pulsation of the pulmonary artery was not visible, and scarcely perceptible to the feel. About a month after, the professor, with his usual kindness, drew my attention to a young man, in whose pulmonary artery could be felt the peculiar movement of the semilunar valves; and as the pulsation of the artery could also be felt, though not so distinctly as one might have wished. I resolved to examine the case with the utmost care, and had the satisfaction of feeling, on the second day, and again two days after, two strong beats of the heart in succession. There was first a strong impulse in the fifth intercostal space; the heart appeared immediately to sink deep into the chest, a momentary pause, and then I felt a strong pulsation of the pulmonary artery.

On Thursday, the 7th inst., with the assistance of my friend, Mr. Robert Blaikie, surgeon, I examined the heart of a young dog, about the size of a large terrier. On opening the pericardium, the heart was seen dilating and contracting, with a slight tilting movement. We both agreed on the following points:—

"That there could not be the slightest doubt which was the contraction and which was the dilatation;

That in this instance the tilting occurred during the dilatation, and not during the contraction;

That, on holding the heart between the hands, it distended or dilated itself with considerable force;

That the first sound was synchronous with the dilatation, and not with the contraction."

The theory that the first sound is synchronous with the contraction rests principally on the experiments and statements of Drs. Hope and Williams. Now, Dr. C. J. B. Williams states, in his fifth Observation, "at each contraction of the heart, the finger felt the tension and elongation of the ventricles; and also something like a brief shock, coinciding exactly with the first sound." Mons. Bouilland makes the following remark, re-echoed by all Europe, "that we would henceforth commit an UNPARDONABLE PHYSIOLOGICAL ABSURDITY to make the impulse and shock of the heart coincide with the diastole of that organ." At the present day, I presume it would be an unpardonable physiological absurdity to speak of the elongation of a contracted heart; and it ought also to be regarded, in the year 1852, as a physiological absurdity to deny the active dilatation of the heart; consequently, if I were required to describe the state of the heart, when fully dilated, I should make use of Dr. Williams' fifth Observation, with merely the slight alteration of dilatation for contraction. It is self-evident, from the words "tension and elongation," that Dr. Williams mistook the dilatation for the contraction. I now consider myself fully justified in advancing the following opinions:—"That Drs. Hope and Williams mistook the dilatation for the contraction of the heart; that the tilting is nothing but a jerking, as it were, of the apex from the basis during the active dilatation; and that such jerking or tilting does not occur when the heart is in its natural position, and pressed upon equally on every side by the other viscera of the chest."

In conclusion, I beg leave to record my firm belief in the unpardonable physiological absurdity, that the impulse of the heart is caused by its active dilatation.

Sir, Yours truly,
ROBERT CARTWRIGHT.

RICH AND POOR; AND A WORD ON THE CARBUNCULAR EPIDEMIC.

To the Editor of THE LANCET.

SIR,—Free-trade has done great things for the medical philosopher; it has annulled, in great measure, the relative advantages and disadvantages of classes of society of the bygone age, and has possibly modified some of the specific diseases. The rich may now be said to be merged into the middle class, as far as the supply of the earth's bountiful productions is concerned; the means of sustenance hitherto, or in former years, so unequal and different, are now on a more equal footing; the luxuries easily and only attainable by the wealthy, are now within the reach of almost every one; the pine-apple, the foreign fruits and wines, teas, coffees, and innumerable other luxuries, are now, vulgarly speaking, dirt cheap.

I am anxious, nevertheless, to divide society into only two classes, the rich and poor; and I should again divide these, for medical purposes, into the prudent rich and the imprudent rich, and the prudent poor and the imprudent poor.

I make this classification for the sake of utility; the prudent rich and poor apply the means at their command judiciously for the preservation of life, and which have been dictated by a high intelligence of the knowledge of the influence of right and wrong, indulgence and conduct. As derangement of health, disease, and death, are traceable, every day, to the violation of the ordinary laws of life, it appears to me therefore, that the much used expression of the sanitarians, "preventible diseases," as applied to the surreptitious power of stenches, &c., as manufacturing specific diseases, is really and truly a gigantic error. No one will deny but that the gratification of our tastes and desires, without limit or control, is an all-powerful element in the maturing of any individual diseases of an hereditary nature, and ultimately destroying the body, and that to a greater extent than any coincident circumstance of the presence of any offensive abominations in the vicinity of such persons. It is time, then, that we should not allow any popular expression of opinion on one side of an important question to mislead the judgment of the medical man who is anxious to call things by their right names; and I apprehend that an error of this nature never would have gained currency if medical men had been selected to constitute the Board of Health.

Your readers will exclaim, what has rich and poor to do with the science and practice of medicine? I answer, a great deal. In your "Mirror of Medicine and Surgery" there was lately a remark about the prevalence of the carbunculoid disease; and a question is asked, whether, in private practice, persons of the upper and middle classes are equally affected with those who apply to hospitals. I have found the middle class of persons who have been in good condition of body at the period of attack, to be equally affected with the poor. I have seen this disorder in the prudent and imprudent, rich and poor, and have come to the conclusion that the purulent fermentative action induced by the epidemic constitution of the air is such, that you cannot rely on those who shall or who shall not suffer from its incursion. I have recently, since the subsidence of the carbuncular affection, met with a good deal of ulcerations, of the size of a pea, and sometimes of a bean, on the pharynx, velum, pendulum palati, uvula, and often of the mucous surface of the mouth. I have found this affection accompany other disorders; for instance, I had three children laid up with scarlet fever; in each of these was the presence of ulcers noticed, although no typhoid symptoms were indicated.

Free-trade will exhibit more and more its social advantages; diseases, or rather our nosology, will be simplified; the bounties of a wise Creator, gathered, by rail and steam, from the different zones of the earth, will be interchanged. The blood, it is hoped, of the Asiatic, tempered by diet of a more suitable or unexciting character, will partake less of the revengeful elements of his ancestors; the sanguinary dispositions of different nations may undergo some wholesome modification by change of diet; and thus may the universal brotherhood be accomplished, and thus we may be able to banish suffering, ill-health, and premature decay, to a greater extent than it is at present possible to conceive.

I am, Sir, your obedient servant,
J. C. ATKINSON, M.D.

A FEW OBSERVATIONS ON MR. MACKARSIE'S CASE OF CONVULSIONS.

[NOTE FROM DR. DICK.]

To the Editor of THE LANCET.

SIR,—It will not, I trust, be considered as implying any disrespect to Dr. Hall, or to Mr. Mackarsie, if I presume to question somewhat, whether the good effects which followed tracheotomy in the above case are entirely due to spasm of the glottis being removed, or rather, to its effects being eluded, as Dr. Hall and Mr. Mackarsie surmise, and not to other causes, presently to be noticed.

The operation was performed on the 24th of August. On the night of that day, or early in the morning of the 25th, there was a discharge, through the incision, of "*a large quantity of mucus.*" This continued on the 26th; on the 31st of August and the 1st of September there was "*violent hæmoptysis;*" and on the three or four succeeding days there was "*bloody mucus*" expectorated.

Now, if spasm of the glottis tends to produce convulsions by obstructing respiration, *à fortiori*, such a condition of the lungs as must have preceded and given rise to the profuse mucous and sanguineous discharges described above, was most likely, surely, to produce the "fits" for which tracheotomy was performed.

I submit that, while in this case there was *unquestionable* evidence of a most seriously congested condition of the lungs, we have none but purely *conjectural* ground for inferring the existence either of trachelismus or laryngismus.

Further, the removal of the pulmonary congestion and of the "fits" was *coincident*.

In this case, then, so far as facts seem to guide us, tracheotomy was useful, *not* by relieving spasm of the glottis, of whose existence we have no satisfactory proof, but by restoring or improving the physiological action of the lungs, and thereby enabling these organs to rid themselves of a morbid accumulation of blood and mucus.

The congested state of the lungs which existed in this case would be sufficient, *without trachelismus or laryngismus*, to cause such cerebral, spinal, and other congestions, as, in a person of peculiar nervous predispositions, would lead to epileptic and other seizures.

No doubt it is within the range of pathological possibility, that the effects referred to might be caused by spasm of the glottis *alone*, but we conceive that the *proof* of such an affection is next to impossible. Certainly Mr. Mackarsie's case is not in point.

It may be added, that if epilepsy depended on spasm of the epiglottis, or on compression of the jugular veins, there would be blackness of the countenance. indicative of arrested venous circulation—not to mention, that an arrest of the cerebral circulation or of respiration, *half as long as epileptic seizures usually last*, would infallibly cause fatal asphyxia. If congestion or spasm, then, has any share in producing epilepsy, that congestion is elsewhere than in the cervical soft parts surrounding the trachea.

The depth of the subcutaneous parts, and the engorgement of the vessels, which Mr. Mackarsie noticed in making his incisions, were no more than might have been expected in a subject whose neck (to use Mr. M.'s own words and italics) was "*very* short."

I am, Sir,
Yours obediently,
Robert Dick, M.D.

THE DEGRADATION OF THE TITLE OF M.D.

To the Editor of The Lancet.

Sir,—I am a physician, well stricken in years, and cannot fail, as must every careful observer, to notice the gradual declension of the medical profession in social estimation and position. Reflecting on what can be the cause of this, I have come to the conclusion that the most potent is the vulgarization of the title of M.D. When I commenced practice, the physician was always regarded as a gentleman, and met with the consideration due to a gentleman in society, and the degree of M.D. was then respected as indicative of the man of polite education, as well as of superior professional attainments. He was, in fact, the connecting link between the profession and the aristocracy, of birth and talent, and it was due to the status of the pure physician that the profession of physic was ever regarded as a polite calling rather than a trade. Now how changed is the state of things! So far from now representing the man of university education and prolonged professional study, it is assumed by every one fresh emancipated from the rolling of pills and mixing of potions, and is paraded by men who draw teeth for a shilling, and "vaccinate gratis." Can it be a matter of surprise that when Doctor A. is seen tugging at an obstinate upper molar, and even eclipses his opposite neighbour the chemist in the blue and red glories of his shop window, that the title should sink in public estimation. How deplorably it has been lowered by such doings, can only be appreciated by those who, like myself, have passed the meridian of life. Why, sir, my grocer, who stands hat in hand in my hall for orders, had two of these bastard M.D.'s at a tea-party last night.

There seems to be a morbid desire among general practitioners just now to dub themselves M.D. A highly respectable gentleman of this class in my town has not long since thus added to his title. If he hopes to add to his position by so doing, how will he be mistaken! Still acting as an apothecary and union doctor however his brass plate of "Dr. ——, Surgeon Apothecary," may astonish the clodpoles from his parishes, it will give him no importance in the eyes of the more intelligent. By thus decorating himself, the practitioner in pharmacy may degrade the status of the true physician, but he will not raise his own.

I am, sir, your constant reader,
Sept. 1852. M.D., but not M.R.C.S. and L.R.A.C.

DEGRADATION OF THE TITLE OF M.D.

To the Editor of The Lancet.

Sir,—The style of the letter signed "M.D., ***but not*** M R.C.S, and L.R.A.C.," will scarcely pass unnoticed by you, as the recognised champion of legitimate medicine, under whatever title it may be practised, and of sound professional education, no matter where obtained, provided the royal stamp be not set on base metal.

The attempt to degrade, in the eyes of the public, the highly educated class who practise the science of medicine in its collective branches, will meet with scorn from many, who, even in the accident of "birth," are probably of better blood than your correspondent.

The truth is, Sir, that "the apothecary" has ceased to exist, except in name; and, in spite of the social disadvantages he has had to contend with, from being dubbed with an appellation which designated a class of men vastly inferior, in point of education, to the druggist of the present day; he has so raised himself in the estimation of the public, that it is becoming more and more common, in the country, to request that the second opinion may be that of some intelligent general practitioner in the neighbourhood.

The antiquated notion, which regarded the M.D. as the *only* educated practitioner of medicine, is fast giving way to the ascertained fact that the examination and required professional study for the College diploma and the Hall certificate is, to say the least, as lengthened and as strict as for the University degree.

Of this fact the educated part of the community are becoming daily more aware; and "M.D.," who doubtless belongs to the firm of "Pure," will find to his chagrin that the barber's pole and the gold-headed cane are alike buried in the tomb of all the Capulets.

In the profession of medicine, as in other avocations, there are doubtless many low and under-educated men; but they form a small section of the entire profession; and if your correspondent had simply regretted that the practice of medicine was by law allowed to assume anything approaching a trading in drugs, I, with thousands of my class, would have joined hands with him; but his ill-judged and jealous attack makes one almost regret that the grocer (who, in his turn, is probably envied by his fellow-tradesmen) did not extend his invitation to the polite Pure—an introduction to the "two bastard M.D.'s" would not have been out of place: at all events, the professional airs of the Pure would have conduced to the entertainment of the evening; and as he will not be neglected henceforth, I can only express a hope, in the immortal words of Cowper, that

"When next John Gilpin rides abroad,
I may be there to see."

I am, Sir, your obedient servant,
A Member of the same College as John Hunter, Astley Cooper, Benjamin Brodie; and a Licentiate of the Company who can add to their well-earned laurels, in the cause of advanced scientific education, the never-dying gratitude of the Profession, by one Great Act—by Petitioning the Crown and Legislature for a change in Name as complete as it is in fact—and by requiring, from the Practitioners of Physic, the most absolute and entire abandonment, not of the Preparation of Remedies, but of all Trading in Drugs.
October, 1852.

To the Editor of The Lancet.

Sir,—I cannot allow the remarks of a physician on "The Degradation of the Title of M.D." to pass by entirely unnoticed. The author is evidently of the old Tory school, and very far behind the age we live in. He alludes sneeringly to "rolling pills," "mixing potions," and "tugging at upper molars," and implies that such operations lower a man's social status, and bring the degree of M.D. into disrepute. It seems, too, to hurt his dignity that his "grocer, who stands hat in hand in his hall for orders," should have "two of these bastard M.D.'s at a tea-party." Upon all this I would merely observe, that in these days in which we live, it is *not* the mere title of M.D., or Physician, or both combined, that will exalt a man in society, nor is it the "rolling of pill" or "tugging at teeth," that will lower him. No; a man is now only estimated at what he is really worth; his knowledge, his gentlemanly bearing, his good feeling, and the strict discharge of his duties (*whatever* these may be,) will alone ensure him a high position; whereas ignorance, roughness of manner, and pride (even if found in a *physician*, and one who subscribes himself "M.D., but not M.R.C.S. and L.R.A.C.") will most assuredly lower himself to the level of his "grocer," and perhaps considerably lower.

Your correspondent also confounds M.D. with Physician. Is he not aware that the former title indicates that the owner of it has had an University education, and is not incompatible with the "rolling of pills," &c. &c.; whilst that of Physician implies examination at the College of Physicians, and is, by consent and arrangement, incompatible with such operations? I am, Sir, your constant reader,

A Physician and M.B., *and* M.R.C.S., &c. &c.

London, October, 1852.

INFLUENCE OF VACCINATION AND RE-VACCINATION.

To the Editor of The Lancet.

Sir,—As a devout believer in the efficacy of *vaccination*, when properly *per*formed and *re*-performed, which belief has not been lessened by twenty-five years of extensive and successful vaccination and *re*-vaccination, I beg leave to send you the following case, as an illustration of what may be done by the timely intervention of the immortal Jenner's glorious prophylactic.

I am, Sir, your obedient servant,

Bedford-square, October, 1852. Samuel Richards, M.D.

Vaccinia and Variola.

On the 8th of July last I was desired to visit E. E——, aged seventeen months, in Little Newport-street, Soho. I found her covered with confluent small-pox, of which she died on the fifteenth day from the appearance of the eruption. *She had not been vaccinated.* The mother, whom I had put to bed about seven weeks previously, was, with her infant, constantly in attendance on the poor little sufferer. The natural expectation was that the infant *must* necessarily take the complaint, and the parents spoke of it as a much-dreaded yet unavoidable occurrence. I immediately vaccinated the infant, to get, if possible, the start of the small-pox, intimating to the incredulous parents that if we could not under such circumstances *prevent*, we might, at all events, "*bother* it." The vaccination took finely, and went through all its stages, although about the fifth day small-pox also made its appearance in a confluent form, but, according to my expectation, was so *bothered* by the vaccination, that it died off in a modified form at about six days and a half after its appearance. The child recovered rapidly, and I believe there is hardly any trace left of the fearful complaint from which it so narrowly escaped. An elder child, which I had previously vaccinated, did *not* take the complaint. Small-pox was very prevalent in the neighbourhood at the time, and made sad havoc amongst the *un*-vaccinated, both children and adults.

A NAP AFTER DINNER.

To the Editor of The Lancet.

Sir,—If any of your readers have ever acquired the bad habit of sleeping after dinner, *and broken themselves of it*, I should be glad to know the means they adopted. I have tried coffee, exercise in the open air, cold water to the face and temples, but all without effect. On resuming a chair in my study, Morpheus recommences the attack, and so invariably conquers that I have almost altogether given up resistance, and now quietly take my nap out. As, however, I find the habit very inconvenient, I am willing to make one further effort, if any of your readers have aught to suggest. I am, Sir, your obedient servant,

A Constant Reader.

A NAP AFTER DINNER.

To the Editor of The Lancet.

Sir,—"A constant Reader" of The Lancet notifies to your readers that he is "a constant sleeper" after dinner, and that these siestal seizures are detrimental to his comforts and studies; and they are further informed that he has tried coffee, fresh air, &c., in abatement of Morpheus' charms, with "no effects." Now, Sir, I have the vanity to believe I can suggest to your correspondent measures of relief; and it shall be upon this understanding, that he shall lodge a fee in your hands, payable, *in the event of success*, to the Medical Benevolent Association; and should he be a professional man, he can the better earn an extra guinea in behalf of that most excellent institution.

I am, Sir, yours very obediently,

C. B. G.

To "A Constant Reader."

Sir,—In reply to your request for advice as to the best means of overcoming the unpleasant and encroaching habit of napping after dinner, I have much pleasure in recommending a mode of treatment, which I have found of infallible efficacy. Direct your attendant to procure beforehand a liberal supply of the most pungent nettles, and having arranged them in a suitable form, let him apply them with an energetic hand, following you round and round the apartment until the drowsy god is entirely ousted from the dominion which he had so unwarrantably usurped over you. Allow this process to be repeated daily for some time, and I think you will find the result satisfactory. I am, Sir, faithfully yours,

"Wide-Awake."

A NAP AFTER DINNER.

To the Editor of The Lancet.

Sir,—I would suggest as a curative agent for post-prandial drowsiness to "A Constant Reader," who is at a loss how to combat this influence, the sitting in a hard, uncomfortable chair. I was myself for some time the victim of this habit; but having become the resident house-surgeon to an elemosynary institution, the governors of which have been as usual not at all solicitous about furnishing with an eye to the comfort of their medical officer, I find no difficulty at all in keeping staring wide-awake, as there is not a chair in the establishment that might not have been used by the Inquisition as an instrument of torture.

I strongly suspect that the fauteuil of "A Constant Reader" is too luxuriously padded to act as an anti-soporific. If he finds a difficulty in procuring a chair sufficiently hard and angular, I shall be particulary happy to effect an *exchange* with him.

I am, Sir, your obedient servant,
J. E. N.

THE PREVENTION OF BED-SORES.

To the Editor of THE LANCET.

SIR,—Of the evils arising to patients long confined to bed, either by debilitating disease, or injuries, more especially those implicating the spinal cord, few give the surgeon more anxiety and trouble than the local mortification of the soft structures from continued pressure on the part—called bed-sores. To obviate these, the hydrostatic bed and caoutchouc pillows answer their desired purpose, but are not within the means of many sufferers, neither are they always applicable, or even necessary, if due vigilance is observed on the part of the medical attendant. Various stimulating lotions are recommended to be used to the integument immediately symptoms exist of its being affected, and though in some cases answering the purpose, yet are objectionable from the necessity of disturbing the patient several times daily by their application. Plasters spread on leather or amadou frequently succeed, but have their disadvantages—the former in consequence of becoming hard by perspiration, or moisture from other sources, and thus defeating the object intended; the latter on account of its expense, but more particularly from its inequality in thickness, and not being in pieces of sufficient dimensions. These considerations induced me to think of a substitute, and I find soft woollen felt to answer the purpose admirably: it retains its elasticity for a longer period than amadou, and does not become hard by moisture; of course it may be spread with soap, adhesive, or any plaster the medical attendant may desire.

I enclose a small piece as a specimen, and should you think it worthy of being known to your numerous readers, by inserting this letter in your valuable journal, you will greatly oblige

Your obedient servant,
Cavendish-square, Oct. 1852. T. J. ASHTON.

CASE OF EPILEPSY SUCCESSFULLY TREATED BY TRACHEOTOMY.

BY W. J. MACKARSIE, Esq., Clay-cross, Chesterfield.

(*Communicated by* MARSHALL HALL, M.D., F.R.S., &c.)

To the Editor of THE LANCET.

SIR,—As I think the following correspondence will prove both interesting and useful, I do not hesitate to send it to you without alteration. I will forward the interesting case itself, with all its details, for your next number.* I am, Sir, your obedient servant.

Grosvenor-street, Oct. 4, 1852. MARSHALL HALL.

(COPY.)

Clay-cross, Chesterfield, July 1, 1852.

DEAR SIR,—Having read your papers in THE LANCET, in reference to the new mode of treatment of Epilepsy, I have recommended it to a patient of mine, who has been for several years under the first members of the faculty at Manchester without deriving any benefit, and who expresses himself perfectly willing to submit to the operation of tracheotomy. Before operating, I take the liberty of naming the case to you, feeling that any suggestions you might kindly offer would greatly aid me; and, if not too much trouble, perhaps you would inform me what instrument *you* particularly recommend, and where I may *depend* on obtaining it. I wish to perform the operation in the *early* part of the week, the patient being very anxious I should do so. I feel deeply solicitous as to the result of the operation, and shall have great pleasure in communicating it to you, as no doubt, from the nature of the case, you will feel interested in it, should only *relief* be afforded.

Apologising for troubling you, I remain, dear Sir,
Yours, faithfully, W. J. MACKARSIE.
Dr. Marshall Hall.

July 2, 1852.

DEAR SIR,—Pray read these papers carefully, and determine whether the case be LARYNGEAL. Unless that is done, we must not think of the operation. I shall wait to hear from you again, and shall be most happy to assist you every way. Excuse haste, and believe me, Yours, truly,
W. J. Mackarsie, Esq. MARSHALL HALL.

Clay-cross, Chesterfield, July 3, 1852.

DEAR SIR,—In reply to your kind favour received this morning, allow me to state, that my patient, respecting whom I wrote to you, has suffered from epileptic fits for some years; the attack is *sudden*, throwing him forcibly upon the ground; he then struggles violently until he can take a full, free inspiration. For two or three minutes there is continued *crowing*, from the glottis being spasmodically closed: but immediately on his having a free inspiration, the fit leaves him, and he is then in a perfectly comatose state for some time. During the fit the face is much congested, the throat swollen, and the veins much distended. Of late his mental faculties have gradually become much impaired, and if there is any probability of its affording relief, his friends are extremely anxious that tracheotomy should be performed.

If not too intrusive, may I ask your opinion as to my adopting it? Any suggestions you may kindly offer will be much appreciated. I shall await a line before taking any further step; and thanking you for your kindness, remain, dear Sir,

Yours faithfully,
Dr. Marshall Hall. W. J. MACKARSIE.

July 6, 1852.

DEAR SIR,—The advantage and propriety of tracheotomy are precisely in proportion to the laryngeal closure and obstruction to respiration. You are *the* judge of this; but, from your description, I am inclined to *recommend* it as most promising. In one case the diagnosis was wrong, and the remedy could of course avail nothing. All in medicine depends on diagnosis—is it not so?—and not in this case only. I have thought of a most simple mode of operating, which I will describe when I hear from you again. All, except this operation, is explained in my Croonian Lectures for 1850, 51, 52, which will be published in one volume, by Messrs. Longman & Co. next week.

Yours, my dear Sir, very truly,
W. J. Mackarsie, Esq. MARSHALL HALL.

Clay-cross Chesterfield, July 8, 1852.

DEAR SIR,—In accordance with your kind favour last received, I again communicate with you in reference to my proposed operation of tracheotomy. I have seen the patient more than once since I heard from you, and what I have been able to ascertain as to his symptoms prior to, and when suffering from, the fits, strengthens my impression as to the propriety of the operation.

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* *Vide* the present number, p. 427.

As I stated in my last, when seized with the fits, he falls instantaneously, and for two or three minutes appears quite unable to breathe, during which period he struggles and foams at the mouth. When he can first draw breath it is accompanied with a crowing sound; but so soon as he can breathe *freely*, the fit ceases, and he then lies for some time in a perfectly comatose state.

In the hope that it may, to some extent, benefit him, I am very desirous of performing the operation the early part of next week; in a district however, so remote as this from the metropolis, it would be difficult for me to procure the necessary instruments, except directly from London, and as I could wish they should be good, and such as *fully* accord with your *modus operandi*, if not too great an intrusion, I should esteem it a favour if you would furnish me with the address where I *can best* obtain such instruments, and I will request a friend in *London* to procure them for me. I shall feel great pleasure in noting the progress of the case, and in furnishing you with any particulars of apparent interest.

I remain, dear Sir, yours faithfully,
W. J. Mackarsie.

Dr. Marshall Hall.

10th July, 1852.

My Dear Sir,—I have written to Dr. W——, for the address of the instrument maker of whom he bought his trachéotome.

It should be of a good size, and a curved silver tube should be sent with it, which will be suitable to the orifice when made. I shall be anxious to know the progress and result of the case, and to communicate any further information in my power.

Pray, return Dr. W———'s letter; and would it be too much trouble to send me copies of my two notes? I am, my dear Sir, very truly yours,

W. J. Mackarsie, Esq. M. Hall.

Clay-cross, Chesterfield, July 12th, 1852.

Dear Sir,—I am exceedingly obliged by your kind communications in reference to my epileptic patient, and also for your writing to Dr. W———, from whom I this morning received a note, recommending me to Messrs. Weiss, of the Strand. I have written to them for a trachéotome, and on its arrival shall be anxious to operate; and I shall feel pleasure in reporting progress and result.

In one of your notes you alluded to a simple mode of operation you had thought of; if not too much trouble, would you favour me with a description of it?

I remain, dear Sir, yours very truly,

Dr. Marshall Hall. W. J. Mackarsie.

Clay-cross, 28th Sept. 1852.

Dear Sir,—Understanding from your last that you would not return to town before the end of this month, I have delayed writing to you about my case of tracheotomy, which I performed *this day six weeks*; and although there were many anomalies in the case, and I have had many difficulties to contend with, still you will be pleased to learn that *he has* not *had one fit* since. I have kept minute notes of the case, and shall, when I know you have arrived in town, forward them to you, I really think this case ought to be published,—1st, on account of the beautiful success attending your most valuable suggestion, and, 2d, on account of the anomalies and difficulties encountered.

Waiting an intimation of your return,

I remain yours, very faithfully,

Dr. Marshall Hall. W. J. Mackarsie.

Clay-cross, Oct. 3d, 1852.

Dear Sir,—I enclose you a brief account of my case of tracheotomy. The man has now quite recovered, and looks more healthy than I have ever seen him. The attempt at the return of the fits is one most beautiful part of the case, showing the benefit of your operation; and again, although I have not observed it mentioned with respect to the faculties—which these fits always sooner or later impair—becoming improved by the fits being cured, still, I am led to believe, from this case, that the brain, although much impaired in *function*, by their frequent recurrence, may, after a time, by the cause being removed, resume to a very great extent its normal action.

I grieve to see in the papers, that one patient has, within the last week, been allowed to die, without this mode of cure being put to the test. Although it will not cure *all* cases of epilepsy, still, where a fatal result is anticipated, and the breathing is laborious, no man ought to be afraid boldly to put in force your most valuable suggestion.

With many thanks for your kindness, allow me to remain, Dear Sir, very faithfully yours,

Dr. Marshall Hall. W. J. Mackarsie.

ST. THOMAS'S HOSPITAL.

To the Editor of The Lancet.

Sir,—I wish to call your attention to the scandalous manner in which the out-patients are treated in the above hospital. The apothecary's shop, in which the medicines are dispensed, is a miserable hole for such an institution, there not being standing-room for more than twelve or fifteen persons to wait at one time, with two, or at the most three, assistants to dispense medicine for often 100 to 200 patients. The consequence of this miserable arrangement is, that the great majority of the poor creatures are kept waiting for hours outside on the cold stones and in the open air. Pray, Sir, insert this letter in your next number, or in your own way expose this inhuman treatment of the poor and afflicted.

Yours obediently, Argus.

Medical Facts, News, Items, &c.

Extraordinary Way of Conducting a Coroner's Inquest.—It is painful to have to find fault with public officers, and particularly so when the offices they hold were placed as safeguards around human life; but, painful as it is, circumstances sometimes make it a duty. There are, perhaps, no investigations which it is more important to conduct strictly and carefully than those taken before coroners, and therefore none in which neglect and hastiness are less excusable or more culpable. We regret that an instance has recently occurred in this town which calls for severe censure. On the second day of St. Matthew's fair, a man named Thomas Herniman, and who resided at Bawdrip, left this town to return to his home. At about eleven o'clock at night he was found lying insensible on the road, about two miles from the town. He was taking up by a Mr. Whiting, and one or two others, and conveyed to the union workhouse, where he was received by the porter at about twelve o'clock; the surgeon of the house was called in, but during the following day the man died, and subsequently a *post-mortem* examination of the body was made. An inquest was held by Mr. Poole, the borough coroner, who called as witnesses the porter of the workhouse, and also a person belonging to the house, who identified deceased, but who had not seen the body till after death; and on the evidence of these persons only, a verdict of "accidental death" was returned. None of those who found the body were called, nor was the surgeon, nor was the opinion of any medical man taken as to the cause of death. The circumstances, too, are such as peculiarly to show the necessity of care, as there was not only a wound on the top of deceased's head, but a very extensive fracture in the base of the skull, which must have been occasioned by considerable violence. Conjectures are of course rife, and a general dissatisfaction is felt among those who are acquainted with the facts at the result of the inquiry—if, indeed, it deserve the name. A gentleman occupying the position of coroner ought to know that hearsay is not evidence in any court, and that therefore even the porter, who was examined, could give no legal evidence whatever, except as to what transpired after he had received the body; and he ought also to know that in cases of violence medical evidence is indispensable to enable the jury to arrive at a correct decision. An inquest ought to be an inquiry into the cause of death, but who will say that this was? If, in fact, inquests are to be such shams as this—inquiries which can throw no light on the facts of the case, and which can be of no service in the promotion of justice or in checking crime, inquiries which can scarcely give the appearance of watchfulness over human life, and which certainly contain no fragment of the reality—better abolish the office of coroner altogether, better have no investigation than one that can answer no purpose. The present case, we conceive, ought to be treated as if there had been no inquest at all, and there should be one held as early as possible, and the matter gone into.—*Bridgewater Gazette.*

Murder Committed by a Patient upon his Medical Adviser.—The list of the fearful casualties to which medical practitioners are exposed is indeed extensive, and much more so than the public dream of. Here is a shocking instance of a surgeon falling a sacrifice to the mental aberration of his patient. The murderer—Paul Neunez—is twenty-six years old, son of the post-master of a village called La Janette, in Belgium, and had for the last two years been under the care of Dr. Leclerq, residing at Hal, a place situated at a short distance off La Janette. Neunez was affected with cerebral disease, and Dr. Leclerq had frequently warned the mother that her son was not right about the head, and that he should be watched. The opinion of the doctor's annoyed the patient very much; he often complained of him, and conceived at last such a hatred of his medical attendant, that he resolved to kill him. He went therefore to Brussels, August 15, where he bought a double-barrelled pistol, which he made the gunsmith load for him with two bullets; he provided himself with powder and some more balls, and returned home. On the 6th of September he went to Hal, during the fair, intending to shoot Dr. Leclerq at a public ball, but the latter was prevented from going. The deed was therefore put off; but on the Sunday following, Neunez returned to Hal with the determination of using his pistol at the door of the church. He inquired of a man living opposite at what time the doctor generally went to mass, and having been told that the latter was not in the habit of going, he said, "So much the worse for him; I must go to his house, then." He went straightway, and was admitted by the male servant and Mrs. Leclerq, with whom he conversed freely, whilst waiting to be introduced into the doctor's study. After consulting with his unfortunate medical adviser for a few moments (the latter having received him with great kindness,) Dr. Leclerq proceeded to write a prescription, when Neunez quietly walked up to him, placed the pistol on his victim's left ear, and fired. A slight struggle ensued between the wounded man and his assassin, but the latter, covered with blood, soon released himself, and walked out of the house before Mrs. Leclerq or the domestics had time to rush to the study whence the report had proceeded. The murdered man had attempted to follow Neunez, had left his study, and was found lying speechless and covered with blood on the threshold of his dining-room, where he soon expired. The wretched culprit went, after this fearful deed, to an inn opposite Dr. Leclerq's house, and assured the inmates, who were terrified at his being covered with blood, that they need not be alarmed—it was only the blood of that doctor, whom he had just killed; and asked for water to wash himself. When examined by the magistrate, he said that it was himself who had shot Dr. Leclerq, and that he hoped he was dead, as, being now in prison, he could not go and finish him. When the unfortunate wife of his victim was mentioned to him, he said that he was very sorry for her, but that as he had property, he would will it to her before he was guillotined.

Death of Napoleon's Surgeon.—A few days ago, Mr. John Stokoe, surgeon, late of Durham, who served in the British Fleet at the battle of Trafalgar, and was subsequently appointed surgeon to Napoleon at St. Helena, died suddenly at his hotel, just after he had ordered breakfast. Deceased had many souvenirs given him by the ex-emperor.

Sanitary Condition of the West Indies.—The state of the public health in Jamaica is improved, and small-pox has greatly abated. In St. Lucia, many persons have removed to the higher parts of the island, dreading the approach of yellow-fever, which is committing ravages in Martinique, and has appeared in St. Thomas's.

Sussex County Hospital.—The foundation-stone of two new wings to this hospital has been laid, which, when completed, will increase the accommodation from 50 to 123 beds. Since the opening of the hospital in 1828, the benefits which it has conferred upon the suffering poor are incalculable.

Godfrey's Cordial.—At Lincoln, a child was lately poisoned through the nurse administering a dose of Godfrey's Cordial intended for the mother. The medical evidence proved that a teaspoonful of it was sufficient to cause death.

The Legion of Honour given to Quacks.—We are grieved to find that the Cross of the Legion of Honour has been given to the veriest quack whom France ever produced. The man had been for years selling and advertising a wonderful medicine for syphylitic disease, and has now, probably by dint of money, obtained a distinction, which in former times used to be granted only to men of high attainments, or who had rendered some signal service to their country.

Hospital for Sick Children.—We regret to learn, that although in September this useful institution relieved 152 infant patients, it now has to reduce its beds from 42 to 20.

Western General Dispensary.—Since its opening, this Dispensary has relieved 153,787, and during the year, 10,317 sufferers.

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ON THE

RECIPROCAL AGENCIES OF MIND AND MATTER,

Being the Lumleian Lectures for 1851,

BY J. C. BADELEY, M.D., CANTAB.

LECTURE I.

Preliminary observations—Exposition of the theories of philosophers—Explanation of the agency of the mind—Close analogy of the nervous and electric fluids—Effects of atmospheric electricity on the human system—Distress of mind the cause of cancer—Opinions of Sir Astley Cooper and Sir B. Brodie—Nervous affections—Illustration of their action—Hysteria—Gout—Theory of gout—Temperament—Influence of the sanguine temperament—Anecdotes illustrative of the fatal power of the mind—Hope—its action—Hypochondriasis—Theory of dyspepsia, and its operations on the temper and disposition—Instances of uncontrolled anger—John Hunter—Sleep—theory of, operation of—Dreaming—Nightmare—Delirium—Somnambulism—Suicide—Epilepsy—Apoplexy—Paralysis—Instances of the power of the mind—Fear—Grief—Joy—Chloroform—Narcotics—Opium—their agency—Alcohol—Fainting.

Mr. President and Gentlemen,—In entering on the office of Lumleian lecturer, which I have the honour of holding, and in offering the product of my humble experience to so learned a body, some little allowance will, I trust, be made for the many imperfections which I am but too well aware are inseparable from my position. The science of medicine has, within the last few years, advanced with strides so rapid, and improvements so unquestionable—whilst treatises so luminous and voluminous, in every department of science, have been launched so liberally from the press—that the selection of a subject for a lecture is as difficult as the prospect of throwing new light upon it is comparatively hopeless. An expansive veil of obscurity, nevertheless, still shrouds the arcana of nature and of disease; and many are the objects which neither the mental acumen of man, nor the telescope of time, will probably be ever able to explain. We witness disease in myriad forms and varieties, and are hourly invoked to obviate its ravages; and we succeed: we employ the remedies which science has supplied, and experience has attuned to their complicated operations: we snatch, in numberless instances, the sufferer from an untimely grave; or, if we fail in averting a fatal termination,—

> “ Make languor smile, and smooth the bed of death.”

Not entirely discouraged, therefore, by the difficulties with which it is encompassed, I have selected for my subject, in the performance of the duties which are assigned me, *The Reciprocal Agencies of Mind and Matter*; and, inasmuch as no part or portion of the body is exempt from mental operations, and, on the other hand, the functions of the mind are either impaired or obliterated by diseases of the Encephalon, a most extensive and interesting field is open before us. Such, indeed, is the varying intensity with which the mind operates directly or indirectly on our corporeal structure, that at one time it prostrates, and in a moment extinguishes every manifestation of life—at another, it paralyzes, or only partially destroys it: or it lays the lamentable foundation of protracted and incurable disease. Knowing, as we do, that the brain is the seat of the acknowledged superiority of man over the whole of animated existence—the fountain from the which our every passion and our every feeling flows—the abode of consciousness—the throne of intellect—of reason—of memory—of judgment—in a word, of every manifestation of the human mind—it becomes our duty to study its material conditions in connection with disease, as well as to trace out and observe the mental phenomena dependent on its impairment. It is not my intention, however, to wander into the mystical labyrinth of metaphysical inquiry, nor to subject myself to the animadversions of theologians by advancing doctrines to which any objection can be raised. A broad margin exists between the *Animus* and the *Anima*. The workings of the one (inasmuch as they are connected with, or dependent on the brain and nervous system) come legitimately within the province of the physician, and may fairly be discussed without entrenching on the object of the care and cure of the divine; and far be it from me to invade his holy mission, or trespass on the boundary of his pious office! Undisputed as it is by men endowed with reasoning faculties, and not afraid to exercise them, that the brain is the material organ of the mind—established as the proposition is by positive, and strengthened as it is by negative reasoning—we have *no choice* but to believe it: hourly evidence demonstrates it; and, to shrink from the contemplation of its workings, or to reject the fact itself, is to mistrust the wisdom and deny the Omnipotence of Him who created and endowed it! Not that the identity of mind and matter is hence to be inferred—the "πνευματα" of Galen are as distinct from the brain itself as the πνευματα, or atmospheric gales, which elicit sound from the Œolian harp, are distinct from the harp itself. "The wind bloweth where it listeth, and no man can tell whence it cometh, or whither it goeth." Should the brain be disordered, as is evinced in the delirium of fever, or should its structure be impaired, as in cases of insanity, the healthy action of the mind is impaired or obliterated also; and, should the harp be out of order, or its strings be out of tune, its music is discordant, its melody destroyed, or no sound whatever can be elicited from it. The brain being the seat of consciousness and of perception, objects act upon it, exciting different emotions and sensations, which are conveyed, through the medium of the nerves, to different organs of the body—to the glands, for example, whereby the secretions are instantly affected. What, in common parlance, is the "mouth-watering," but the sight and anticipation of a savoury morsel acting through the brain and nerves on the salivary glands, augmenting their secretion, and otherwise preparing the digestive apparatus for the exercise of its function? What are tears, but the liquid essence of grief or joy emanating from the action of the mind on the lachrymal glands, under the influence of mental emotion? What is the palpitation of the heart and tremor of the muscles, in cases of sudden and strong excitement, but the action of the mind on the muscular fibre, and consequently on the circulating system, through the medium of the nerves? And so on with other functions of the animal economy which it is unnecessary to enumerate. That these effects *are* produced, and these sensations generated, is known by daily and hourly experience to every one; but to demonstrate *how* it is effected, "*Hic labor, hoc opus.*" The subject, at all events, has given birth to many shrewd conjectures—to many ingenious theories—to great varieties of opinion, and to much profound reasoning amongst philosophers, from the time of Hippocrates to the present day. Haller, who has examined these respective theories most minutely, leans to the opinion that the *modus operandi* of the nerves is by means of a most subtle fluid permeating their cavities, and to which the name of "*Spirit*" was given. This is, in fact, the "*Arachæus*" of Van Helmont, the "*Anima*" of Stahl, the "Πνευμα" of Galen, the "*Materia vitæ diffusa*" of Hunter, the "*Vital principle*" or "*Subtle essence*" of others, all of which are, in fact, synonymous. Hunter conceived that this mobile, invisible spirit, was superadded to inert matter, as magnetism is to iron, an put in motion other bodies which are evident t the senses; that it is consequently analogous t electricity and magnetism, though not identic and is so beautifully described in the 6th Æn of Virgil.

As to the "vibrations and vibratiuncles" o Hartley, whether of an elastic ether, or of the in finitesimal particles of the brain and nerv "there *may* be such things" (as Dr. Reid sa "for what we know, and men may rationally i quire whether they can find any evidence of th existence; but, while we have no proof of th existence, to apply them to the solution of ph nomena, and to build a system upon them, i what I conceive we call building a castle in th air." It is true that Sir Isaac Newton formed a conjecture of this nature, an authority which would seem to give it a firmer foundation; but he admitted also that it was not established by proof, though it was entitled to be examined by experiments. Hartley, however, referred all our sensations and ideas—in a word, all the operations of our minds—to this theory of Vibrations—a theory which is opposed and ridiculed by Stewart, Reid, and Drummond. Descartes has attempted almost to demonstrate how, by the animal spirits going and returning in the nerves, muscular motion, perception, memory, and imagination are affected. Some anatomists reject these ideas on the assertion that the nerves are not tubular! Others assert that they are! Le Gallois believed that there is a secretion in the nerves by which their power is transmitted, and through which medium the brain and spinal marrow exercise their action throughout the body. Then, again, there is a sect of *Idealists*, of which Bishop Berkeley and Hume were the leaders: Berkeley, indeed, so warmly embraced his vapid theory of ideas and perceptions, as to reject the very existence of matter altogether! But, as Lord Byron observed,—

> "When Bishop Berkeley said 'There was no matter,'
> And proved it—'twas no matter what he said!"

The only other theory which I shall adduce, and that to which, in my opinion, the greatest plausibility attaches, is, that the nervous influence depends mainly on some modification of galvanism and electricity; and it is an equally curious and corroborative fact, that substances which conduct electricity are also conductors of the nervous fluid, and *vice versâ*. A strong instance of animal electricity presents itself in the Gymnotus, or electrical eel, which it is sufficient that I should name, without detailing its well-known properties.

This is a favourite hypothesis with many able physiologists, as well as with myself, and a close comparison of their agencies substantiates the closeness of their analogy. The experiments instituted by Dr. Wilson Philip, of dividing the nerves supplying the stomach and respiratory organs, and then substituting their suspended functions by a stream of galvanism, still further confirm the doctrine, and so vividly illustrate its robability, as to place all others comparatively n the shade. The nerves are, in short, the lectric wires by which the brain telegraphs its workings to different glandular stations, or issues s commands to the muscles of volition! If hose wires are severed, the telegraph works in ain; if those nerves are divided, the operations f the mind on the respective organismus are annihilated also. Dr. Philip, after detailing his xperiments, asks—"Is it possible to explain the esult of these experiments without admitting the dentity of the nervous fluid and galvanism? We must either admit this, or that there is another power capable of performing the most characterstic and complicated functions of the nervous system." Dr. Cooke favours the same opinion. Mr. Walker, in his work on Philosophy, says—"If a person stand on the electric stool with glass feet, and touch the prime conductor for a few minutes while the machine is working, his pulse will be greatly accelerated; and if bled in that situation, the blood will be projected a considerable distance,—showing that electricity stimulates the motion of the heart, and increases the motion of fluids. Can any doubt remain" (he asks) "that this wonderful agent is a prime instrument in muscular motion?" The perpetual variations of our feelings and spirits, without any assignable cause, are, I have no doubt, frequently produced by the varying proportions of electricity in the atmosphere, exerting an influence on the brain and nerves through the medium of our respiratory organs; and it is highly probable that the vital energy common to all animals and vegetables is dependent on the agency of electricity, though perhaps not identical with it. Mr. Smee, in his Treatise on Instinct and Reason, says—"A gentleman who has much to do with various persons as an agent, assured me that the weather much influenced the action of people, and to such an extent was he practically acquainted with it, that he never went out to canvass on a dark and and gloomy day; but when the sun shines, and the sky is bright, people feel happy within themselves, and then he can do business with them?" (p. 250.)

In damp and hazy weather, when electricity is carried off from our bodies by humidity, our spirits become languid, and our sensibility less acute—the nerves lose their tension and elasticity; whereas, on high mountains, spontaneous flashes have been seen to be darted from the fingers, the body containing more than the surrounding rarefied and conducting air.

I am corroborated in this my opinion, also, by Dr. Holland, who says—"Little though its influence has yet been defined, I believe that the electrical state of the atmosphere is that of all its conditions which has most important and diffused effects on the animal economy, more rapid and pervading than any other, and (as one of the vital stimuli) more intimately allied to the functions of the nervous system," (Notes and Reflections, p. 485.) It is difficult to advert to the effects of atmospheric electricity on the body without noticing the question whether this great natural agent is not of itself directly engaged in the functions of the nervous system. It is obvious that changes of atmospheric electricity have much influence on the sensations and voluntary powers, producing results variously analogous to those which attend certain morbid states of body more familiar to us. An atmosphere highly charged with electricity produces alternations of chill and warmth on the skin, and many indescribable sensations; sometimes feelings of a rheumatic character in the muscles, tingling and itching of the sentient extremities of the nerves; and a thunder cloud is frequently productive of headache or other cerebral affections. All this demonstrates the influence of electricity on the animal economy.

But, to return from this digression.

If the mind possesses, through the medium of the brain and nerves, such an immense and powerful influence on the subordinate corporeal organization as to enable man, under the excitement of mental emotion, to perform the astounding feats, and accomplish the Herculean labours which we continually witness or read, it can easily be understood that it can also impair or totally subvert the frail and delicate elements of which our corporeal frame is composed. Thus it happens that by its stimulus to the circulating system, the action of the heart and arteries is impelled at times beyond their powers of endurance; and a vessel bursting on the brain, a fatal apoplexy suddenly ensues, or a lingering paralysis is entailed for probably a melancholy series of years. The body succumbs to the sovereign influence of the mind; and the hero, whose "very name struck terror to the foe," is at once reduced to a state of helpless impotence.

In others, where, through misfortune or through grief, the spirits, once so buoyant, are utterly dejected and depressed, the canker-worm of care, with slow and insidious progress, eats into some less vital organ, and, altering its structure and vitiating its faculties, gradually undermines the fabric of the constitution, and establishes a painful, an incurable, and ultimately a fatal disease.

During the few years in which I formerly practised in London, whilst engaged one morning in conversation with the late Sir Astley Cooper in his study, a patient was announced who had come from Norfolk for that justly eminent surgeon's opinion and advice. His keen and practised eye at once discerned the malady; and before he put a question to the elderly and melancholy object that had entered the room, Sir Astley asked me if I could name his disease? I admitted my inability beyond that of a constitution thoroughly impaired; on which Sir Astley said that he was much mistaken if the poor man was not suffering from carcinoma of the rectum, and that probably his mind was ill at ease. On examining the patient the accuracy of his diagnosis was most fully confirmed. He then observed how frequently that disease ensued on mental distress.

The disease is, however, by no means confined to the rectum. The female breast and the uterus are particularly subject to scirrhus from the same cause.

"I should have observed," says Sir Astley Cooper in his lectures, when speaking of the causes of this disease, "that one of the most frequent is grief or anxiety of mind. It arrests the progress of secretion, produces irritative fever, and becomes the forerunner of scirrhous tubercle. How often have I found" (he continues) "when a mother has been watching, night after night, with anxious solicitude, the pangs and sufferings of her child, and has had the comfort and gratification of seeing its recovery, that in a short time after this she has come to me with an uneasiness of the breast, which on examination I have discovered to be scirrhous tubercle. Full three-fourths of these cases arise from grief and anxiety of mind. It is the state of mind and body which predisposes to this disease. The mind acts on the body, the secretions are arrested, and the result is the formation of scirrhus. Look, then, in this complaint, not only at altering the state of the constitution, but *relieve the mind*, and remove, if possible, the anxiety under which the patient labours."

Most surgeons, I believe, concur in this opinion. Some, however, consider that there must be an hereditary or constitutional predisposition to the disease. Others, that it belongs especially to maidens, or to women who have never borne children. Its visitations, however, occur indiscriminately; and where the exciting cause is sufficiently strong to generate the disease at once in a diathesis favourable to it, a similar result, though more remote, may ensue where it may not be expected. Leaving, however, the subject of cancer (which, it must be admitted, is a strong illustration of the morbid consequence of mental sorrow) yet still adhering to the depression of spirits as a fertile source of bodily suffering, we embark at once on the wide ocean of Nervous Diseases.

Here again the softer and more susceptible sex are, as it is well known, the peculiar victims; for their sensibilities being more refined—their habits (especially in the aristocratic circle of society) far more sedentary—whilst their minds are less briskly engaged—the influence of nervous irritability is more intensely felt, and more permanently engrafted, than in man. Their passions, moreover, being as strong, or perhaps stronger than in man, but covered by that mantle of concealment which Nature, hand in hand with feminine modesty, throws over them, the inward fire keeps slowly smouldering on, and secretly consuming the frail tenement in which it lies imbedded—they become the prey of grief and disappointment; robbing them of

"Tired Nature's sweet restorer, balmy sleep"

—destroying their appetite for food, and their enjoyment of pleasure—absorbing their every thought—disturbing their secretions—and thus undermining their general health, and, perhaps, ultimately sapping even the citadel of Reason itself! So Virgil, speaking of Dido, says:—

"At Regina gravi jamdudum saucia curâ
Vulnus alit venis, et cæco carpitur igne
Multa viri virtus animo, multusque recursat
Gentis honos—hærent infixi pectore vultus,
Verbaque—nec placidam membris dat cura quietem.[*]

Hence arises Hysteria in its myriad fantastic shapes, acting on and agitating different parts, and simulating sundry structural affections so insidiously as to endanger the diagnosis even of experienced physicians. The irritable breast described by Sir Astley Cooper, the hysterical joint and other local affections, delineated so well by Sir B. Brodie, are striking illustrations of it; and it is distressing to think and to know that even limbs have been amputated, and painful operations performed, under an erroneous and simulated impression of the existence of *organic* disease. To quote the latter talented surgeon's (Sir Benjamin Brodie) own words:—"I do not hesitate to declare that among the higher classes of society at least four-fifths of the female patients who are commonly supposed to labour under diseases of the joints, labour under hysteria, and nothing else," (Lectures, p. 37.) These diseases occur in persons of an irritable disposition and nervous temperament, in whom there is excessive excitability, accompanied with diminished power. The catamenia are almost always *irregular*, and generally deficient; and this whole class of disease is, probably, in the majority of instances, the reverberations of disappointed Nature on the nervous system. The mind acting on the body through the great sympathetic nerve, affects different parts and different structures, varying in intensity, in form, and in duration, in proportion to the varying sensibilities of its victims. Hence the extensive catalogue of what are *designated hysteric* affections, deriving their name (as the etymology indicates) from that focus of excitement to which my theory alludes. "Sed nec spectabilior est hujus morbi frequentia," says Sydenham, "quam varietas illa multiformis, qua se ostendit, et nullos ferè non emulatur ex iis affectibus quibus atteruntur miseri mortales. Quamcunque enim corporis partem insederit, symptomata (qualia ei competunt parti) statim producit, et nisi medicus tam sagaci quâdam solertiâ et δεινοτητι quam in arte peritia valeat, fraus ei fiet, atque ista symptomata à morbo aliquo essentiali hujus vel illius partis, non verò ab affectione hystericâ, pendere arbitrabitur."

Though corroborating my purpose, it would consume an unnecessary portion of time were I to adduce all the extraordinary and protean forms in which hysteria manifests itself. Suffice it to say, that, contingent as the malady is on persons of high nervous excitability, attended with diminished power, it is best obviated by that class of medicine, and met by that line of treatment, which calms the one and renovates the other; and the medicines and treatment must be adapted to the particular form in which it presents itself, and to e individual circumstances of the person so fected.

Albeit, however, the female sex is more espe-ially the subject of this disease, the etymology f which, as I just observed, would clearly *confine* to WOMAN, many are the instances in which men e also visited by it, inasmuch as it is an affec-on of the nervous, as well as of the uterine stem. "Quinimo," as that patriarch of medi-ine just quoted observes, "non pauci ex iis *viris* ui vitam degentes solitariam, chartis solent im-allescere eodem morbo tentantur." Another roof, though a negative one, of its *nervous* origin, presented in the fact, that, however acute may ave been the local pain, dissection casts no light n its pathology, the seat of all the suffering vincing, in a large majority of instances, no iscernible cause of its intensity, whilst the whole lass of tonic remedies which would aggravate the mimic inflammation, were it otherwise than vision-ry, is that which experience establishes as the most conducive to relief, the disease being dependent, in fact, on loss of tone, with excess of nervous susceptibility.

It would be a culpable omission, in speaking of the influence of the mind as a cause of disease, were I not to make a brief allusion, also, to that aristocratic visitation termed the Gout. We know that, independently of hereditary disposition, its *seminium* is in the stomach—that its agency is conveyed by the blood to the organs which it principally invades, and that excesses of an Epicurean character will produce and mostly generate a paroxysm. It cannot, however, be denied that all powerful mental emotions, though opposite in their nature, will generate it also in a gouty subject, and that a fit of anger is a notoriously frequent exciting cause. The passions may either occasion an attack or cause its retrocession, or give birth to some irregular or misplaced action; and the suddenness of metastasis proves that the inflammatory type is one "*sui generis*," and deviating from the nature of inflammation in its ordinary form. If, as I have before observed, and as must be universally admitted, the influence of the mind will alter the secretions, there is no reason why the stomach and its office of digestion should be exempted. We know that the sudden announcement of bad news will at once take away the appetite;—and why? The shock vibrates to the various parts of the body, through the medium f the nervous and circulating systems; the ervous energy, is thereby partially paralysed; he function of digestion is consequently deranged, nd a paroxysm of gout is at once generated, here the predisposition exists.

Weakness of the remote nervous ramifications ill necessarily influence the secretions of the arts which they supply; and when, as in gouty ubjects, the blood abounds with excrementitious atters, the exhaled and secreted fluids possess reternatural or morbific properties, which affect he sensibility of the extreme nerves, and irritate he tissues in which they are deposited. The lectric rapidity with which *Matastasis* occurs can only be explained by reference to the organic nervous system, in co-operation with the arterial; the *materies morbi* being vested in the peculiar state of the blood. Now, if we contemplate the intimate connection which subsists through its medium, we can easily comprehend the transference of sensibility from one part to another. The tone, however, if not the structure of a part having been impaired by previous attacks, renders that part constantly liable to a fresh invasion; or it may visit other organs, according to the several causes which prevail, or the vascular conditions which at the time may happen to be in existence in those organs.

In consequence of frequent and severe attacks the structure of the minute vessels subsequently becomes altered, and the lithic lava of gout is at length deposited in the form of tophi or chalk stones.

Temperament is frequently connected with the progress of disease. There can be no doubt that the irritable temperament—*i. e.*, the sanguine, is more peculiarly under the influence of casual injury and of disease, and that an accident which in others would yield to the *vis medicatrix naturæ*, is frequently followed up in such subjects by serious constitutional disturbance. This temperament, wherein, as Hunter shrewdly observes, there is an "overaction to the strength of the parts," is characterized by extraordinary vivacity of the nervous and vascular systems. Tremblingly alive to the slightest impressions, the sensibility of such persons is more acute; and I am firmly of opinion that they suffer infinitely more pain under surgical operations, as well as more grief under mental affliction, than others who are not thus endowed. The mind is susceptible of greater emotions—their feelings are less under control—they float more buoyantly on the surface of hope, or they sink more deeply beneath the depths of despondency. They are more liable to tetanus after an operation, and their recovery is more uncertain and protracted. Raving madness belongs more particularly (according to the observations of Esquirol and many others) to the sanguine temperament, whilst the melancholic is most prone to Monomania and depression of spirits: nor is death an unfrequent consequence of this excess of their morbid sensibility. The body in such subjects is the slave of its tyrant empress, and life itself succumbs to her dominion. Such persons have been known to expire suddenly during the steps preliminary to a surgical operation. A striking instance of the fatal agency of the mind is recorded of a man who, under the bloodthirsty Robespierre, was condemned to be guillotined: by some accident the knife was arrested in its descent, and on removing the victim for the purpose of adjusting the fatal apparatus, life was found to be extinct: the mind had anticipated the executioner, and performed his office.

Another instance, which I believe is well authenticated, is presented in the case of three criminals on the Continent, who were condemned to die, and were only reprieved for the advancement of science, and given over accordingly to the tender mercies of surgeons, as the subjects of experiment. These professors informed them, that though the sentence of death was immutable, yet under the circumstances they should suffer little or no pain in its execution, which it was decreed should be carried out by the gradual loss of blood. Their eyes being bandaged, a slight puncture was then made in each of their arms, and a small stream of warm water was poured continuously over the arm; thus giving them the entire conviction that their blood was flowing into the pail beneath. After this had been carried on a reasonable time, it was found that two out of the three had ceased to live! The fatal influence at other times, though equally effective, is more distant.

A surgeon in Essex, with whom I was well acquainted, rode several miles on horseback, early in October some years ago, to consult my father. He was about forty-five years of age, and not only appeared to be, but admitted that he was, in good bodily health; yet a conviction had impressed him that he should not survive the ensuing February. It was in vain that my father endeavoured to reason him out of it, and urged him to follow his favourite amusement of fox-hunting through the approaching season. He did so; but "death on the pale horse" overtook him, and realised his unalterable apprehension. A patient who despairs of recovery is certainly in greater danger than he who is convinced of his convalescence; and the vista of disease is dark and dreary in which the taper of hope has been utterly extinguished. The physician, therefore, who by his countenance or by his manner can inspire it, has gained an unquestionable advantage in the work of his vocation. The patient, especially if of a nervous temperament, studies his every turn of countenance—weighs his every word—and the thermometer of his feelings rises or falls accordingly. The mind becomes enlisted in the service, and by its influence on matter dispels the peccant humours that oppress it. It becomes the duty therefore of the physician to infuse consolation and to inspire hope, wherever he can do so without confiscating truth; for

> "Sunt verba et voces quibus hunc lenire adoloem
> Possis, et magnam morbi deponere partem."

And here, though the language of poetry may by some be deemed inconsistent with the graver matter of a medical lecture, I cannot forego the quotation of lines so beautifully illustrative of the *powers* as well as of the "*pleasures* of hope," as—

> "Go, seek the dismal chamber, where disease
> Reclines with wasted form and pallid hue;
> Where through the half-closed shutter sadly creeps
> A feeble ray that scarce a twilight sheds;
> Whilst all around distressing signs appear
> Of fruitless remedies! Mark, then, how sweet
> To lift the eye of *Hope* upon a friend!
> To feel upon the fluttering pulse the grasp
> Of one beloved—it beats with firmer force—
> The languid eye beams momentary joy;
> And sickness, cheated by the smiling scene,
> Awhile forgets her pain-inflicting task!"

It is the despair of relief that too often impels the sufferer to fly into the arms of death in o to

> "Whirl him, happy riddance, from himself."

This arises most frequently from exagger nervous irritation, as in the higher grades hypochondriasis resulting from both physical moral causes, and acting with awful severity the brain through the nerves of the dige apparatus. In aggravated cases of dyspep where the mucous membrane of the stomach intestinal tube is disordered, the mind beco impaired: hope is abandoned: reason is o thrown, or rather, in such cases, as Lord Ersk observed—"Reason is not *driven from her* but distraction sits down upon it along with h and holds her trembling upon it, and frightens h from her propriety." The delusions of fancy, disordered imagination, and morbid sensibility, flit around their victim, and terrify him. The sympathetic palpitation of the heart is misconstrued into organic disease; the little nervous or hepatic cough is converted by the imagination into pulmonary phthisis; or the occasional giddiness, confusion, pain, heat, or other anomalous sensations in the head, engender an apprehension of apoplexy, paralysis, or derangement. Sometimes the sufferer avoids society from having lost all pleasure in it; or, if some pitying relative or friend should endeavour to engage him in conversation, he is unable to enter upon it, and swerves perpetually from the subject to describe his feelings, and seek their explanation. Consolation is refused; or the abortive effort to lighten his despondency by making light of his complaints is twisted into raillery, and perverted into unkindness. Tortured by hypochondriasis, and frightened by the ghosts of fancied ills, he flies from one physician to another for advice; or, beguiled by the *ignis fatuus* of empirical puffs and base and baseless promises of cure, he becomes the dupe of quackery and the martyr of imposture. Here there is frequently a reciprocated agency of mind and body; the unremitting nightmare of the mind impairs the secretions and digestion, and the irritability of the nerves and mucous membrane (aggravated perhaps by the drastic purgatives with which he has injudiciously been tortured) has added fresh irritation to the material organ of the mind. It is astonishing to observe how constantly the temper is affected by this malady. A friend and connection of mine, a most amiable man in all the domestic relations of life, and a pattern of piety, became so irascible under its influence, that he would sit before the fire and kick the fender, till he nearly destroyed it; swearing violently on the slightest provocation, and (to use his own words) "longing for a sword that he might cut any one to pieces that came in his way."

It is on the same principle that the drunkard is almost invariably irritable and morose; and a similar effect frequently ensues after a full meal, or on eating indigestible articles of food. The irritation of the gastro-intestinal nerves is comnicated to the brain ; the temper manifests stimulus ; perception is less acute, and the ntal faculties are tarnished and oppressed: ce the valuable Roman maxim, "*Impransi pirite !*" is evidently founded on observation good sense.

Notwithstanding the entire derangement of h the bodily and mental functions in this ase, Anatomy has thrown no light on its hology. Villermay maintains that the primary t is in the stomach, and that the disease consists a morbid state and an excess of organic sensiity of the nervous system, which is reflected npathetically on different organs. Broussais fers it to the coats of the stomach, and a chronic lammation of its mucous membrane. M. Geort, on the other hand, refers all the phenomena the brain, and supports his theory with most ausible arguments. Certainly, when the cause different cases is closely studied, it would ppear that sometimes the disease is manifested rimarily in the brain, and at others in the ligestive functions ; each theory has its respective nerits. "*Et vitulâ, tu dignus, et hic !*" Be his as it may, the stomach in either case is ffected. The hypochondriac, however, must not nly abstain from those ingesta which augment his irritability, but must also exercise some moral estraint, and do his utmost to curb the first mpulse of temper, by the aid of his reason and eligion, as well as by abstinence. Many, after heir nervous energy is exhausted, resort to fresh timulus and to narcotics, and with temporary elief; but the irritability is mostly exasperated y such measures after the soothing effects have assed away; and both insanity and suicide have een the ultimate result.

Want of proper restraint during infancy and childhood lays the foundation of irritability of temper in numberless instances, and affords a a lamentable illustration of the mind's dominion. That irritability swells into incontrollable passion, which grows with their growth, and strengthens with their strength, till the mind assumes an unhealthy condition, runs away with the reason, and becomes insensible to its curb. Cerebral excitement at last induces cerebral disease; the membranes become vascular, and subsequently thickened, and the reiterated moral is converted into a permanent physical cause of mental derangement.

Abundant instances might be adduced of sudden leath from the vehemence of anger, as well as of its devastating effects on the organismus of our bodily frame. Amongst the former may be numerated the celebrated John Hunter—dying in St. George's Hospital, from the irritation consequent on opposition to one of his motions at the weekly Board of its Governors ! Cheyne, Bonetus, and other authors give similar instances. The secretion of bile is unquestionably deteriorated by the operations of the mind ; its blackened inspissation, combined with depression of spirits, has supplied the appropriate cognomen of melancholia. This is corroborated, moreover, by the relief that it derives from mercury, and its specific action on the liver, as well as the relief given to the irritated gastro-intestinal nerves by carrying off the acrid secretion by mild and cooling purgatives : and hence Lord Byron declared that an ounce of salts exhilarated him more than a bottle of champagne ! Since, however, both mind and body suffer in hypochondriacs, both demand our attention. Where the disease is traceable to hard study, close confinement, &c.—which so frequently happens—it is evident that both must be discontinued ; and where (as in Broussais' theory) there is evidence of "gastro-enterite," the antiphlogistic plan must be adopted in the first instance, and the tone of the stomach subsequently repaired by that regimen and those medicines which experience has established as most efficacious, but which it is superfluous that I should here enumerate.

Thus far I have cursorily alluded to some of the manifestations of mental influence in the form of those ordinary diseases which are daily subjected to our attention ; and in so doing I have sought to refer the agency to that animal electricity which (as I have observed) so many physicians and philosophers consider the most plausible explanation. A careful contemplation of the phenomena can, in my opinion, bring us to no other satisfactory conclusion ; and the more closely they are analyzed and the more attentively examined, the stronger is the corroboration. But—

"Est quodam prodire tenus, si non datur ultra."

There is a boundary which we cannot pass, and there are secrets in nature, hidden from our eyes, which can probably never be revealed. The material organ of the mind is within our grasp,—albeit, its subtile essence still eludes it ; as the mariner can shift his sails and shape his course through the deep, but cannot control or command the winds that waft him through it ! The human mind, even in its highest state of culture, is inadequate to the attainment of many mysteries ; but light from Heaven, which has shone on many scenes of former doubt and darkness, may yet conduct the diligent inquirer to truths such as human intellect has never hitherto attained.

We have taken a glance of the power of the mind in producing disease and even death, and we have yet much before us as we advance. It may not, however, be irrelevant to direct our transient attention to its powers, and also to its condition, apart from disease—viz. in a state of Sleep, a state in which the external senses and the voluntary motions are lulled into insensibility and temporary quiescence, whilst the involuntary motions are carried on with steadiness, though perhaps with some relaxation of their activity. Here, in other words, the functions of the brain are comparatively suspended, whilst those of the ganglionic system (though sharing a portion of the insensibility of the brain from mutual connexion) enjoy, with modified change, their own inherent power. When the activity of the brain and nervous system has been exhausted (as occurs every 24 hours under the ordinary circumstances of existence,) or when a greater demand than usual has been made upon them by excess in mental or muscular exertion, or by any other course tending to expend their inherent excitability, this well-known miniature of death ensues; it is, in fact, a most salutary provision of nature for the restoration of that *vis vitæ* which would otherwise quickly be expended altogether. During sleep the process of nutrition is also carried on more perfectly, and with increased activity; and this is in some measure proved by the increase of corpulence, and general deposition of adipose substance, in those who indulge unnecessarily in it. This is humorously instanced in the fat boy in "Pickwick!" Every farmer knows that, where sleep is perfectly sound, and the mind as well as the body is in deep repose, *both* rest from their labours and regain their strength, and so imperious is the demand where either mind or body have been *entirely* exhausted, that neither silence nor darkness, nor uneasy posture,—nay, not even (as history can establish) the close approach of the hour of a public execution, can sometimes avert it. The fatigue of the body is, however, more inducive of it than fatigue of mind; for a close attention to literary labour frequently generates an irritability which prevents it; whereas in Captain Barclay's celebrated match of walking 1000 miles in 1000 consecutive hours, he was not only fast asleep (especially in the latter part of his task) the *moment* he sat down after completing his mile, but it was with the greatest difficulty that he could be aroused at the proper time for accomplishing another—so powerful a sedative is exhaustion!

After a certain time, however (which is when the mental energies are recruited,) the sleep becomes less deep, the waking fancy begins to work, and those inexplicable monsters of the mind called Dreams arise. They are the interludes between sleeping and waking, where imagination is busy whilst reason is prostrate and sensation is torpid, and where, consequently, the altered balance of nervous power distorts the action of the brain, not unfrequently generating intellectual abortions of hideous and incongruous formation. This is painfully exemplified in what is well known by the name of *Nightmare*, where, under that abolition of voluntary power, a painful desire to exert the voluntary muscles arises; although as soon as those voluntary muscles regain their power, the phantom vanishes. This is consequent for the most part on cerebral irritation communicated by the gastric nerves during a paroxysm of dyspepsia.

Now it is the aggravated state of cerebral irritation attendant on fever which constitutes Delirium. Delirium is nothing more than a protracted dream during a state of disease; and as dreams generally consist of the revival of old associations respecting past events, or of new ones consequent on recent occurrences, which the intellectual powers are too much disordered to arrange, a confused mass of ideas is presented, and expressed aloud. Delirium, therefore, is a state of thinking, without the person being able to control the association of ideas, or correct his thoughts by external objects; sometimes they would appear to be prophetic, an their influence over the mind even fatal! A ca illustrative of the power of dreaming is well authen ticated in a lady, the daughter of Sir Charles Le who stated that one night, when she was in be a little old woman came, undrew her curtains, an said—"I am your mother, and to-morrow, by 1 o'clock, you will be with me!" The young la arose, wrote a letter to her father, sealed it wi black wax, and by 12 o'clock on the following d was dead,—so strong was the impression on h mind. There is an inscription on her tomb confirmation of this extraordinary effect of mind on the body, even during sleep. Ma deaths have been predicted in dreams and be verified; numbers in lottery tickets have bee whispered in a dream, and been drawn prizes! and some useful admonitions have been communicated, for which "search the Scriptures."

Yet, although this is the ordinary state which constitutes dreaming, there is another state of sleep named Somnambulism, in which the bodily functions are more under the control of the will than what usually constitutes dreaming, so that the individual *acts* under the influence of his conceptions. Here, while the senses are obscured, and all other objects are unperceived, the somnambulist manifests a faculty of seeing, feeling, and of discovering the object of which he is in pursuit; for he walks, and frequently over dangerous places, in perfect safety, and performs many of the common offices of life, and can occasionally hold conversation. The brain would fain appear to be secreting ideas under the influence of sleep, and telegraphing their fulfilment to the obedient muscles of volition.—Many and ludicrous are the instances recorded by medical authors; nor has the dramatist let pass the opportunity of amusing the public by the representation of these vagaries of Morpheus—"La Somnambula," to wit. I could relate many; I will only, however, adduce *one* which came under my observation in a young lady of sanguine temperament and high nervous irritability, and who was under my care. She was a person of highly cultivated mind, and devoted herself very closely to the acquisition of knowledge, which was very probably conducive to the irritation. After having been in bed and asleep for two or three hours, she would gradually rise, put on her dressing-gown, go down stairs, walk about the drawing-room, sometimes balance herself like a rope dancer on the back of the sofa as she walked from one end of it to the other; then go into the dining-room, op the cellarette, help herself to a glass of wine, afte wards return to her bed-room, plunge her face in to a basin of water, and get into bed again. Wh spoken to, she would mutter an indistinct answe In the morning she was perfectly unconscious her midnight ramble and only complained of slig headache, but not enough to interfere with he daily occupations.

It is difficult to explain these extraordinary occurrences satisfactorily or pathologically.

The functions of the brain and medulla spina separate—sleep is undoubtedly an affection of brain; and, where the brain is *much* oppressed, stituting *Coma*, its functions are entirely sus- ded—in sleep only partially so. Yet the spinal tions continue in office; and though, in a pro- ted state of coma, not only they would shortly suspended, but life itself, they are so little af- ted during sleep that the voluntary muscles e a liberty of action; and somnambulism is ally a result and a proof of this. When the ctions of the brain are *entirely* rested, and sleep, mpt from visionary interludes, is dispelled by ture being restored, it is then perhaps that the llect is most clear, the judgment most perfect, preception most acute, the sensibilities most ned. Thus, "The first moment of waking has en defined—that moment of horror to the un- ppy when, amidst returning perceptions, increas- d in acuteness by the refreshment of repose, a ense of misery suddenly darts its sting into the eart, and renews with tenfold vigour its suspended nguish." This is the time when so many victims of mental emotion rush headlong into eternity; and, could many of those unhappy beings who have been found dead in the morning be restored, I have o doubt that they would substantiate my convic- ion. They try to sleep again, but they invoke the rowsy god in vain:

> "He, like the world, his ready visit pays,
> Where fortune smiles: the wretched he forsakes;
> Swift on his downy pinion flies from woe,
> And lights on lids unsullied with a tear."

Could they but sleep again—could sleep but be duced by narcotics—their melancholy exit had een averted; but, aroused by Nature from that weet oblivion in which all their cares and troubles ere just now shrouded and at rest, the sad reality f their condition is more acutely felt than when mingling with those who carry on the world, and whilst they were comparatively abstracted from themselves by the passing objects around them. The intensity of feeling predominates over every other consideration in that solitary hour, and, getting an unfortunate ascendancy over their better judgment, precipitates them into the abyss which alone appears to promise them a refuge from all sublunary difficulties and anxieties. "Some people" (observes Dr. Burrows) "the more soundly they sleep, when they awake, have all their hallucinations more vivid, and resume all their violence." That the ganglionic system is distinct from the brain is further demonstrable by experiment; for convulsions of the most violent charac- er occur after decapitation, and can be called to action by galvanism long after the manifesta- ns of life have ceased. Again, the spinal nctions may be entirely arrested, as in paraplegia, nd yet the operations of the brain remain unaf- ected. For example, I was requested to see a an in my neighbourhood who had fallen from a ree on his back, and fractured the dorsal verte- ræ. Entire anæsthesia of the lower extremities nsued, as well as all possibility of moving them; et his intellect remained unimpaired till a few ours before his death, which did not occur till six weeks after the accident. Many such cases are recorded. All these effects—the classification of nerves, their distinct offices or functions, together with their pathology—are most lucidly expounded in Dr. Marshall Hall's Lectures on the Nervous System; but, as this subject is independent of the operation of *mind* on matter, it may be somewhat irrelevant to enlarge on it on this occasion. Where *mental* shocks are productive of spasmodic affections (of the which they are a fertile source,) it is through the action of the brain on the excito-motory nerves. A paroxysm of epilepsy induced by mental excitement is strongly illustrative of this; and sudden alarm or a burst of anger is a most frequent cause. "Parmi les causes excitantes de l'epilepsie la frayeur tient tout à coup sur le premier rang. La colère, et un chagrin profond, paraissent (après la frayeur) tenir le premier rang parmi les causes de l'epilepsie." It is produced by depressing as well as by exciting passions. When there is a predisposition to epilepsy, a cause of either kind, be it productive of excessive or of defective action, may interrupt the equable transmission of the sensorial power, and thus occasion a fit: and hence it is desirable to retain every patient, who is subject to epilepsy, in a state equally distant from plethora as from undue emptiness of the cerebral vessels. In epilepsy both the cerebral and spinal systems are equally affected, as is demonstrated by the temporary stupor and insensibility in combination with the violent convulsions of the whole frame. The frequent occurrence of an epileptic fit during sleep evinces that it is referrible to venous congestion in the brain; and the termination of the fit in stupor and headache, in addition to the effusion of serum, and other morbid appearances, consequent on repeated attacks, proves how deeply the brain is implicated in this distressing disease. The intellectual powers also become impaired, and frequently terminate in idiocy or insanity, dependent on serious organic lesions within the cranium. In other cases no abnormal appearance is discernible. "Sed et fessi fuerunt summi in arte viri atque in rebus anatomicis peritissimi" (to use the words of Van Swieten) "quod in cadaveribus hoc morbo defunctorum nihil invenerint sæpè quod culpare poterant." The pathology of this disease is unquestionably involved in much obscurity.

Now, connected with or consequent on epilepsy, it is not uncommon to find apoplexy or palsy.—My learned predecessor in this rostrum, Dr. Marshall Hall, classed them, in fact, under one bracket, and supported the theory with his well known ingenuity and talent. He says:—"The patient affected with paroxysmal apoplexy sometimes becomes epileptic; the epileptic, on the other hand, sometimes experiences attacks which gradually assume the more apoplectic character. The fits of apoplexy usually terminate in an apoplectic stupor, and this sometimes in mania." Sudden emotions (as I stated in the early part of my lecture) have very frequently given rise to apoplexy, owing to the highly increased arterial action, and the venous compression attendant on it, of which numerous instances are given in Aretæus, Portal, Cheyne, and other authors; and, as both these states occur in an epileptic fit, an apoplectic or paralytic seizure may naturally be expected.—Paralysis, according to my repeated observation, is more frequently connected with the depressing passions—such as distress of mind from losses, sorrow, frustrated speculations, and other sources of anxiety and disappointment. The nervous energy which had previously subsisted, and carried the projectors through much mental and bodily fatigue, producing increased determination to the brain, with congestion of the sinuses and veins, is succeeded by *exhaustion* of organic nervous power, giving birth, in persons of a gouty diathesis, to an attack of gout—in others, of mature age (and in whom the circulation through the brain is liable to physical imperfection,) to a rupture of the minute blood-vessels, and consequent effusion into some part of the encephalon. The result of such effusion manifests itself variously, according to the seat or to the extent of the lesion that has occurred. It may have occurred in the base of the brain, or in the spinal column, as well as in the meninges or substance of the brain itself. If the effusion in the brain be slight, absorption may take place, attended with entire recovery; or the effusion may increase, and be followed by extension and aggravation of the paralysis, and ultimately by death. But there *can* be *no* doubt that both apoplexy and paralysis are occurring almost daily from intellectual disturbance, and consequent on a deficiency of the due equilibrium of the nervous and vascular systems. Amongst the multitudinous minor instances adducible, another striking instance of the effect of the mind is displayed in the change of the colour of the hair, which becomes rapidly grey, or falls off, under the influence of anxiety and grief. The late chaplain of Newgate told me that he has been astonished at the rapidity with which dark brown or black hair, in young subjects who have fretted after their commitment, has been bleached. A lady of my acquaintance, who experienced great unkindness from her husband soon after marriage, lost every hair, not only from the scalp, but the eye-brows and eye-lashes came off; and her skull in a few weeks, was as smooth and polished as a billiard ball.

Other instances of the extraordinary operations of the mind present themselves in the metamorphoses of the Fœtus in Utero, as is well known, and are highly authenticated; and, moreover, powerfully illustrative of the subject of my lecture—in the dispersion of warts by what is termed charming them—the suspension of an ague-fit by impressing the patient's mind with the conviction that it will not recur (be the instrument what it may)—the removal of disease by pretending to a miraculous agency—of the toothache, by invoking the presence of the dentist, &c. &c.

I will now take a cursory view, however, of the effects of one or two of the passions. I have just observed that Fear, or rather sudden fright, is a frequent exciting cause of epilepsy. Its immediate operation is to paralyze the body, and is there precisely opposite to the influence of Rage violent anger. The respiratory nerves are stantly affected, causing embarrassment in bre ing, and accelerated action of the heart, atte with diminution of its momentum, and retard of the returning venous blood; thus giving ri the pallor so notoriously characteristic of the sion. There is a temporary congestion, co quently, in the heart and lungs, and exhaustio nervous power to such an extent that the li totter and shake, and scarcely a muscle but ticipates in the asthenia; sometimes (as I already observed) the exhaustion of the vis vosa at once annihilating existence. It is a fe source also of insanity, as well as of nervous ease. I was consulted a few weeks since in th case of a young lady who was affected with partial hemiplegia and chorea, from being frightened by a crazy man, who forced himself into the house after dark, but she soon recovered. There is a case of fatuity at this time at High Beach, in one of the asylums which I visit, owing to the patient being frightened at school by a mock trial of him for stealing a knife from one of his school-fellows; they pretended that they were going to hang him: he escaped, and hid himself for some hours in a ditch, where he was found idiotic. Numberless similar instances might be adduced, resulting from fancied apparitions, or other causes of terror and surprise.

Look, again, at the consequences of Grief on the animal system. We have mentioned one of these in the beginning of my lecture—viz., Carcinoma: and many more sad consequences might be enumerated. It tends, when inordinate, to determination of blood to the brain: it is a not unfrequent cause of insanity; and would be still more so, did not Nature proffer the relief of tears. The countenance at once betrays it: the *depressor anguli oris* is of itself so characteristic of mental sorrow that the artist can instantly pourtray it, and change the representation of laughter into that of weeping by a mere stroke of his pencil, calling that muscle into play. The common phrase of being "down in the mouth" no doubt takes its origin from the action of this muscle. General languor, moreover, prevails; for the exhaustion of nervous energy which follows fast on the agitation and restlessness of sorrow depresses the whole frame, and leaves it in a state of lassitude and inertia. A general stupefaction of the intellect mostly ensues, all the vivid perceptions which might previously have reigned being absorbed or concentrated in the predominant affliction. The expression of countenance is painfully interesting, and his must be a flinty heart in which a feeling of commiseration and sympathy is not excited on witnessing it. All the harsher emotions of the countenance are lost and melted down; and woman is said to be more radiant through the mist of sorrow—

> "So properly the object of affliction,
> That heav'n is pleased to make distress become her,
> And dresses her most amiably in tears."

That the heart may become structurally affect- by the continuance of grief may be asserted th little fear of contradiction; or little faith can reposed in the writings of Corvisart and others, o have studied its pathology with attention.—hat is the simple and constant concomitant act sighing but the comparative inertness of the art's action, and the consequent impulse of consted lungs to

> "Cleanse the fraught bosom of that perilous stuff,
> That weighs upon the heart."

Sir Charles Bell has beautifully described all the inutiæ, and explained them admirably, in his Anatomy of Expression," a work which merits place in every library of science and interest, algrè a few little errors of opinion. He carries n his illustration even in the brute creation, and demonstrates by close analogy that though they have not, strictly speaking, *reason* for their guide, they have instinct,—nerves, and feelings, and emotions, and passions, in common with ourselves, and so verifies the poet's humiliating assertion, that

> "Man differs more from man than man from beast."

The opposite excitement—viz., that of intense *Joy*—has also a most powerful effect on the system, and is, perhaps, more to be dreaded in its consequences of the two. This has been abundantly witnessed from the sudden and unexpected supervention of great wealth on nipping poverty; and insanity, and even death, have been a not unfrequent consequence; for the mind is elastic, and gradually rises from the weight of sorrow that depressed it; but when the load of embarrassment and anxiety and distress is suddenly removed, and a superabundant influx of nervous excitement is as suddenly infused, the specific gravity of reason is thrown as it were from the mind's centre, and never able to regain her seat. It is an overcharge of animal electricity, and an explosion follows, the illumination and destruction being simultaneous. Instances of its fatal property are recorded and familiar. Pliny asserts positively that the joy of having won the prize in tragedy put an end to the days of Sophocles, and also of Dionysius of Sicily. He also gives the example of the Roman lady who died for joy to see her son safe returned from the battle of Cannæ. Another instance presents in the old Greek who died on the spot from excess of joy on seeing his three sons crowned with laurel at the Olympic games. The pathology is only explicable on the principle of nervous excitement already specified—in other words a shock of animal electricity; for no *structural* disease could be detected by post-mortem inspection under such circumstances. We can only say that the equilibrium of the nervous and vascular systems has been disturbed to a degree incompatible with the laws of existence, and death is the result!

All other emotions and passions are, in fact, only modifications of the influence of the mind on the material organization already described; and it may be difficult to penetrate more deeply into "*cet abyme des incertitudes*" than has been done by those whose names I have quoted, and by other physiologists whose reputation is immortalized by their researches in this interesting branch of medical philosophy, and is identified with it. It cannot be denied that the functions of the brain and nerves—the reflex action of the latter—the respective peculiarities of the sentient and motor nerves—the distinctions between involunary muscles and muscles of volition—the ganglionic system—the separate offices of the brain and spinal marrow, and all their individual and combined operations and uses, have been most minutely studied, and most assiduously investigated, and partly ascertained, within the last few years, not only by those on whom the grave has closed, but by several who still live to enjoy the *superbiam quæsitam meritis*. Should the latter have retired from the field of philosophy to enter it no more, the laurel still is green upon their brow; and with this encouragement, let us hope that, though the subject is intricate, and the barrier apparently insurmountable, others may not be deterred from prosecuting the inquiry, remembering that

> "The wise and active conquer difficulties
> By daring to oppose them."

In fact, the subject merits even more attention than it has hitherto received; for, however valuable the pathological observations may ultimately be, the inferences which have been drawn from the experiments which have been instituted are nevertheless so incomplete and perplexed, that farther research, and the "*longioris ævi diligentia*," are requisite to verify them. The nature and exact functions of the ganglia—that prime minister of organic life; the sympathetic nerve, with its various connections and offices; the endowments and relations of the medullary and cineritious constituents of the brain and nerves; the unity of the nervous power; the vital principle itself, and its connection with material organization;—in a word, the *terra incognita*, which at present forms the extreme boundary of human knowledge, is still involved in an obscure mist and mystery which affords ample space for our consideration and study.

If Vivisection be indispensable to the further prosecution of physiological inquiry, and physiology stagnates because humanity shudders and shrinks from the infliction of pain, it is gratifying to feel that her handmaid, Chloroform, is come amongst us as though to obviate the leading objection to experiment, and beckon us to farther scientific investigation. Her supreme power over the entire nervous system may ere long open the portal to information which as yet has been closed against us, whilst her anæsthetic agency must rank high amongst the most valuable of modern medical blessings and discoveries. The extended action of it, and of other powerful anæsthetic and stimulant medicines on the nervous system, is a subject well worthy of especial study. It has burst in upon us lately with a dazzling effulgency, although it must at present be considered in comparative infancy. As we employ it more generally, and become better acquainted with it, many advantages may be anticipated from this class of remedy, especially in mental and nervous affections. We all know or have witnessed the operation of the Nitrous Oxyde on the nervous system; the astonishing influence of Mesmerism; the anæsthetic effect of the inhalation of Æther; the operation of Aconite and other narcotics,—the effects of all of which on the brain and spinal marrow are strongly illustrative of the antithesis of my subject—viz., the action of *matter on mind:* and here, amongst the first and foremost, must be classed the maddening fascination and mental bewilderments consequent on Opium and the preparations of it,—that Nepenthe of both mental and corporeal suffering and inquietude,—"sine quo," as Celsus observes, "medicina quasi manca sit, ac claudicet!" How many a painful paroxysm of agony does it not avert! How many a night of ease and tranquillity does it not procure, which, but for "this sweet oblivious antidote," were spent in suffering and restlessness! Who can forget the poetry and pathos with which its Elysian properties have been depicted by De Quincy in his "Confessions!" Yet who would not shrink from the Circæan cup, or dash it to the earth, rather than be similarly enslaved by its intoxications! Under its powerful influence the nervous system is variously affected in different individuals. Perception is confused; ideality is excited; memory is blunted, or is, perhaps, extraordinarily augmented; visions arise which are confounded with realities; and the mind becomes entangled and intoxicated by it! It begins by exciting, but terminates by stupefying the brain, inducing coma and death: but its action on the mind through its material organization is a striking illustration of the dependence on, and the connection of, the one with the other. The sublimities of genius are, indeed, not unfrequently invoked and elicited by these mental stimulants, which excite the brain, though at the expense of the stomach. Many of the fine pictorial productions of Fuseli are said to have been the children of indigestion and irritated brain,—nay, it is asserted that he ate freely at supper of whatever was calculated to cause dyspepsia and nightmare, for this express purpose.

The effects of all the narcotic poisons on the animal organismus are very analogous; some are more rapid in their effects than others, as Prussic Acid; some are attended by convulsions; some dilate, whilst others contract the pupil of the eye. The principal symptoms are cephalalgia, vertigo, affection of the retina, with paralysis, convulsive stupor, and death; but no morbid lesions are discernible from narcotic poisons, unless we include venous congestion or serous effusion in the encephalon. The general impression is, that they either operate on the brain through the circulating system, or, as others maintain, their operation is on the centre of the nervous system, and its sympathy with those expansions of it on which the morbific impressions are made; and the instantaneous death consequent on a large dose of Prussic Acid favours this theory.

The action of stimulants is to awaken the susceptibility to impressions, to pour fresh oil into the lamp of exhausted nature, to sharpen the intellectual energy, and to dissipate sorrow and anxiety. "Give strong drink unto him that is ready to perish, and wine unto those that be of heavy hearts. Let him drink and forget his poverty, and remember his misery no more," said Solomon.

Profane authors teem with such encomiums. Many a passage might be cited from scores of classic authors in support of the exhilarating and creative influence of Wine. Some of our most celebrated statesmen would not attempt to speak, until they had aroused their powers of eloquence by stimulant potations; and Horace asks—

> "Fecundi calices, quem non fecere disertum?"

Energy is therefore the first impression that is made by Alcohol as well as by Opium. The mental function acts with unwonted power; wit is awakened—and fancy and imagination being aroused, and luxuriating with unfettered vigour, the poet and the orator pour forth their sublimest strains, and give utterance to their grandest conceptions. If, however, the stimulus exceed the due proportion, and reason is floated from her capitol, the ideas become confused and incoherent, the powers of the mind are swamped, vertigo follows, bringing exhaustion in its train, and a φsudo apoplexy finishes the scene. Where a copious potation has been suddenly made, not only the mucous membrane of the stomach is inflamed and injured, as Dr. Roupell has ably depicted to us in his treatise, and illustrated with coloured plates, but the shock sustained by the nerves is communicated to the brain, and a fatal result ensues before time for absorption can take place. From smaller proportions, daily and constantly repeated, we have palsy, dyspepsia, mania, delirium tremens, debility, and every indication of the intellect—the brain, and whole nervous system, being shattered and destroyed—and our gaols are crowded, our madhouses are stocked, and our church-yards filled, by the victims of this pernicious and demoralising vice. Without, however, digressing into a treatise on alcohol and its effects, suffice it to say, that the *vis nervosa* and powers of the mind are salubriously augmented or perniciously impaired by its action on the brain, according to circumstances:—and in alluding to the articles which I have just enumerated, I feel that I have adduced the strongest illustrations with which we are acquainted, of the instrumental agency of *Matter on the Mind*. This it is which renders the study of the operations of stimulants and of narcotics particularly incumbent on those who devote their time and attention to the treatment of insanity: for the condition of insane patients is very various. Wine, which in a state of health induces a temporary delirium, will, on the other hand, mitigate or suspend the low muttering lirium of typhoid fevers, where it arises from pressed vitality. The same observation applies opium. How frequently this is demonstrated the calmness and rationality with which pa- nts awake, where Morphia has been given in sh proportion as to induce sleep under such rcumstances! and though of course insanity is t to be confounded with delirium, yet how valu- le is the effect of morphia, and of henbane at nes, in every lunatic asylum, as well as in the ver hospital! My friend Dr. Seymour asserts e acetate of morphia to be more efficacious in at melancholy stage in which Suicide is to be prehended, than any mode of treatment which n be adopted; and I fully coincide in such pinion in many instances. It is equally so in erperal insanity, and in other forms of mental lienation attended with irritation and debility. How strikingly this is evidenced in the delirium a potu, or "tremens" as it is generally termed. Where, from nervous exhaustion, therefore, the nerve matter, whatever it may be, no longer exercises its function as a medium through which the mind exercises volition or receives impressions, morphia would appear to impart a new mode of consciousness. It suspends the exhaustion which causes the disorder of the sensorium in Typhus, and refreshment follows the repose that is induced by it—in a word, the alternations of mental action correspond with states of bodily excitement and exhaustion; but the cause of any deviation from the normal condition of either mind or body must be ascertained before the appropriate remedy can be prescribed, inasmuch as cerebral excitement in an opposite condition would be aggravated by opium or stimulants.

Inequality in the distribution of blood to the brain invariably affects the intellectual functions, be the cause what it may. This is evident in the simple act of fainting (in which all consciousness, perception, volition, and other properties, are suspended for a time) as much as in congestion of the brain. Fainting is, in fact, a vivid instance of the subjugation of the body to mental emotion, for it is a suspension of the heart's action, consequent on a sudden impression on the mind. This theory is, however, opposed by that eminent physiologist Bichat, who asserts that the brain has no immediate influence upon the heart. His opinion was, that the passions and mental emotions are to be referred primarily to the heart, and not to the cerebral system; and in analyzing the pathology of syncope he contended that the suspension of the heart's action was in all cases the *primary* circumstance; that of respiration, sensation, and voluntary motion, being only *secondary*. Great as may be the presumption to differ from so celebrated a physiologist, it is difficult to concur in this opinion; for where it occurs in persons of delicate susceptibility on the sight of a toad, or a spider, or blood, or any other offensive object of sight, (as so frequently occurs,) it is surely an impression on the brain through the medium of the optic nerve, and communicated *secondarily* to the heart and circulating system. Where syncope is consequent on sudden loss of blood, on the heat of crowded apartments, on the use of the hot bath, on long standing, and other physical derivatives of blood from the brain, this theory is admissible; but that it is *also* produced by the agency of the mind appears undeniable, and the etymology of "leipothymia," or "animi deliquium," is accordingly given to it. Since, however, it cannot be denied that Syncope is by no means an unfrequent consequence of FATIGUE, —and inasmuch as I should deeply regret to find myself a remote or proximate cause of such an occurrence in this room by trespassing at *too great* a length on your attention,—I will here close my lecture.

LECTURE II.

On nervous agency—Insanity—early indications of it—instances of the acuteness of insane people—tendency of women to insanity—its exciting causes—study—religion—poetry—Its usual divisions and varieties—ludicrous instances—anecdote of Hatfield and the late Mr. Baron Garrow.—Medical Jurisprudence.—Monomania.—Pathology.—Lunar influence.—Proportions of male and female patients.—Effects of the passions.—Chances of recovery,

In my preceding lecture I endeavoured to pourtray some of the leading agencies of the mind (through the medium of the brain and nerves) on our bodily structure, and, as far as the impenetrable mysteries of the *modus agendi* will admit, to describe their operations and results. Their extensive variety—their extraordinary manifestations—their morbific and fatal consequences, are daily evinced, and indisputably established; and the more seriously we reflect on them, and the more carefully we contemplate them, the more imperatively are we bound to admit—

> "How complicate—how wonderful is man!
> How passing wonder He that made him such!"

We have shown in a few instances how the whole animal machinery is subject to the two classes of nerves—to those which proceed directly from the brain and spinal marrow, and, in accordance with their origin, are termed cerebro-spinal; and to those which are characterized by ganglia, and termed ganglionic. The former comprise that portion of the nervous system which relates to sensation and volition; the latter consist of those which supply involuntary motion, and which are the source of nutrition, and of the movements of the internal muscles over which we have no control. To these Sir Charles Bell has added the "Respiratory:" their functions are separate; and the distinction is demonstrated by the circumstance that the latter can be carried on independently of the former, as has been proved by the physiological experiments instituted by Le Gallois, Sir Benjamin Brodie, Dr. Wilson Philip, and others. There is, nevertheless, a concatenation of the whole nervous system by various minute filaments, connected also with the sanguiferous system; and as the function of secretion is affected by the action of the nerves on the blood, it is evident that the different secretions vary in proportion to the supply of nervous power: hence it is that diseases are established by the combined influence of the brain and spinal marrow, employed as they are in forming the secreted fluids, and in supporting the other processes on which the due structure of every part depends. Hence also arise the phenomena and treatment of disease in general; the restoration of health being, in other words, the restoration of secretions. Now, although I have said that the functions of the sensorial and of the nervous powers are separate, the sensorial power is capable of impressions on the involuntary muscles through the medium of the sympathetic or ganglionic nerves, as is evinced under the excitement of various mental emotions and passions. Again, the temperature of the animal body is maintained by the evolution of caloric from the blood through the agency of the nerves; for the temperature of any part is reduced by whatever impairs the action of the nerves supplying it; and the whole body is reduced in temperature where the whole nervous system is affected. I merely mention these well-known facts in confirmation of the entire subjection of the body to the mind through its material instruments the brain and nerves, and of the immense and universal influence which they possess and exercise over every portion of the animal economy.

The sensorium, evidently residing in and operating at the source of the nervous power, there receives the various impressions transmitted by the nerves, and there influences those nerves which convey its dictates. Thus all the functions of the nervous and muscular systems, by which we are connected with the world that surrounds us, are constantly subjected to the sensorial power; while the functions on which our life depends (with the exception of respiration,) are only occasionally so, and under circumstances in which the will has no control. The muscles of respiration are only partly involuntarily, for we can accelerate, or retard, and for a few seconds control them altogether, as is instanced in what is commonly called "holding the breath," though the impossibility of existence without the act of respiration very soon compels us to renew it. Were it not that the consequences of the lungs being deprived of atmospheric air predominate over that suspension of sensorial power which occurs in apoplexy, death would be the rapid result of every apoplectic seizure. Yet respiration becomes more laboured, slow, and stertorous, in proportion as the sensibility of the sensorium diminishes, till the last gasp is heaved, and life is extinct.

Enough has, however, been advanced in support of the power of the mind, and of its material agents. The respiration is instantly affected by it; and all the chaos of passion and of mental emotion is most graphically illustrated (as Sir Charles Bell has demonstrated) through the medium of what he terms the respiratory nerves.

Without entering farther, therefore, on the physiology of the nervous system, and retracing the ground which has boen so assiduously trodden by those celebrated philosophers who have deeply investigated, and ably elucidated that obscure yet interesting mine of science, I have determined to take now a view of the mind of man in a state of disease. I have already represented it in many of its fitful vagaries, and attempted, however feebly, to recal its protean operations to your memory, where, in the zenith of its healthful power, it has partially affected, or wholly subjugated, its fragile encasement.

Over voluntary and involuntary muscles the mind exercises its omnipotence; and be the organ what it may, or the structure what it will, its influence and agency are despotic and supreme! That influence, however, is not confined to it in a state of health, since, when its leading ornament and peculiar human characteristic, Reason, has been overthrown, its many other attributes retain their seat: and memory, perception, volition, passion, sensation, would seem in many instances to have scarcely suffered from the shock. Now, although we began by admitting that the mind and body are distinct, it was also shown that the one was indispensable to the manifestations of the other; and therefore, if its material organ was impaired, the operations of its immaterial tenant would generally be perverted or annihilated. The modifications of disordered action which ensue from its impairment will be principally regulated by the seat of the disease: and a tolerably accurate diagnosis may often be formed accordingly. The form also of the disease frequently betrays the pathology; for the brain, like other organs, being liable to disease of structure as well as to disorder of function, the researches of anatomy have shed a valuable light on the prognosis as well as on the diagnosis of mental diseases.

Insanity exists frequently without any disorganization of the encephalon, is purely functional, and is then infinitely more amenable to remedies; indeed, where it depends on extensive disease of structure, all hope of recovery must be utterly abandoned. Its invasion is generally gradual. There is a period of what has been appropriately termed "Incubation;" and this is the period in which it is the most under our control.

That the longer the disease has existed the less is the probability of recovery, is, I believe, universally acknowledged by all who have devoted themselves to this branch of our profession; and the statistics of the malady prove it. Andral considered it incurable after the expiration of two years; but unless it be dependent on lesion of structure, experience leads me to dispute his opinion. That such recoveries are comparatively rare I am free to admit; but their chances mainly depend on the care, kindness, and comfort afforded them. Many paupers, who had been inmates of workhouses for years, considered incurable, and neglected in consequence, have been restored after a few months' residence in a county asylum, where they have been more carefully treated and more kindly used.

Since, then, the invasion of insanity is generally gradual, the slightest alteration in the habits or natural disposition (especially where there exists an hereditary tendency) should be carefully observed. Few people are Phrenologists, but all are Physiognomists; and the expression of the countenance, and particularly of the eye, will frequently give the first notice of the incubation. It shrinks from the popular gaze, and catches furtive glances of the visitor; it has a sly, and a fixed and downward look; or it has a vagrant and vacant expression; in some it has a quickness and restlessness; but, be the bias what it may, there is an indescribable character beaming through its glassy surface, which tells the tale to the experienced observer. In the exercise of my office of visiting physician to the asylums in Essex for the last twenty-four years, I have always studied this feature, and have found it most valuable in assisting me to decide on the existence of mental disease, where the aberration has been so slight, or the part of sanity so ably acted, as to almost deceive the magistrates who have accompanied me in my visitations, and induce them in fact to doubt the propriety of the confinement. Dr. Male says, "Insanity may generally be discovered by a wildness in the eyes; very high or very low spirits; extravagant or inconsistent conversation or action. The eyes are sometimes fixed for a long time on one object, and often on vacuity. These first symptoms (he adds) usually pass unnoticed by inexperienced observers; and it is frequently difficult to convince them that the patient is insane, unless his conversation is absolutely incoherent, or his conduct dangerous," (p. 209.)

The appeals of patients for liberty are perpetual, and generally supported by so positive an assurance that they are unjustly detained, that I have frequently had great difficulty in satisfactorily controverting them; and special visitations, independently of those which are appointed by the Act of Parliament, have frequently been required for that purpose. A young lady of singular acuteness and of finished education, who held the situation of governess in a family, and was sent to the asylum of the late Dr. Allen, of High Beech, addressed me once in these words:—"I understand, sir, that you are the visiting physician to this establishment, and that one of your duties is to see that no person is improperly confined here. Now, sir, as I assert that such is my position, gauge my intellect!" and in the examination which devolved on me, and which lasted a considerable time, I was most forcibly reminded of the words of Shakspeare:—

> ———"How pregnant her replies!
> A happiness that madness often hits on,
> Which sanity and reason could not be
> So prosperously deliveréd of!"

In this instance the wildness of the eye was discernible, and at variance with her well-dissembled firmness and self-possession.

The acuteness of the insane in disguising their malady is astonishing. In a case of madness tried at Chester before Lord Mansfield, the patient was so clever that he evaded questions in court the whole day, and seemed to everybody perfectly sane. Dr. Batty, however, came into court, and, knowing the point of the man's derangement, asked what had become of the princess with whom he had been in the habit of corresponding in cherry-juice? Instantly the man forgot himself, and said it was true that he had been confined in a castle, where, for want of pen and ink, he had written his letters in cherry-juice, and thrown them into the stream below, where the princess had received them in a boat. This man had had sagacity enough, during the whole of the day, to answer correctly all the questions put to him in court, Lord Mansfield being the presiding judge. Even the acuteness of Lord Erskine was insufficient (being unacquainted with his particular hallucination) to detect the insanity of a lunatic who fancied himself to be Christ; and he was indebted for the discovery to the presence of Dr. Sims.

Sleeplessness is another predominant feature in early as well as in matured insanity. The sensorium is too morbidly alive to sanction healthy rest, and the busy imagination is at work by night as well as by day. It is mostly referrible to excess of nervous and vascular action in the brain, like the delirium attendant on fever, and is accompanied by the ordinary indications of preternatural excitement consequent on such excess, and superseding the feeling of exhaustion.

A morbid perversion of the affections and natural feelings, though unattended by any perceptible lesion of intellect, is a very frequent early indication; nay, so constant is this moral alienation, that it is considered by Esquirol to be the proper characteristic of mental derangement. We observe it vividly marked in puerperal cases, and I have witnessed feelings of strong attachment suddenly supplanted by indications of decided aversion to the husband and children. Utero-gestation of itself, independently of any tendency to insanity, is frequently accompanied by extreme susceptibility of impressions, by peevish irritability of temper, by depression of spirits, and other reflections of the womb on the brain and nervous system.

The state of the mother during pregnancy is frequently also communicated to the infant, even where no constitutional liability to insanity exists; and it is in the womb that we are to look for some of the modifications of mental disease. The mother, who would otherwise have had the gratification of witnessing the "mens sana in corpore sano" in her offspring, had the current of life and circumstances run smoothly during that important condition, will, if subjected to fright, or vexation or anxiety, or other causes which disturb her mental serenity, give birth to infants whose brain and nervous systems will be liable to convulsive or spasmodic affections; or, as they advance in life, to imbecility or dementia. This was abundantly proved during the excitement of the French revolution, and is too often exemplified in private life, where the woman has been doomed to suffer unkindness, or unmanly violence, from him to whom she had been taught to look for comfort and support.

In a very considerable majority of cases of insanity in women, much of the disease will, however, be found accompanied by irregularities of the uterine system. This condition arises from, or may be partly attributable to, a state of congestion in which the brain participates, combined with the nervous irritation consequent on an altered state of the system, and is frequently relieved by the abstraction of a few ounces of blood. The practice of venesection during pregnancy (which was more common formerly) would, I have little doubt, tend more than any other measure to prevent both puerperal insanity, convulsions, and other common sequelæ of parturition; but the lancet has lost much of its pristine popularity.

In addition to the expression of the eye and countenance, to sleeplessness and alienation of feeling, there are numberless and various indications of change in the mental condition, such as thoughtfulness, inactivity, neglect of and apparent indifference to former pursuits and pleasures, absence, constipation, vitiated secretion, sudden impulses, restlessness, extravagant schemes, suspicion, sudden bursts of laughter or of tears, &c., &c. Some forms of insanity, indeed, so closely resemble aggravated cases of hysteria, as almost to identify them, especially in that form which is termed *Erotomania*. Here there is generally some irregularity in the uterine function, together with excited imagination, protracted desire, and great susceptibility of the whole nervous system, of all which the maiden "nulli bene nupta marito" is peculiarly the subject. This is another illustration of the effect of the mind on the body.

The brain is at first only sympathetically affected; but the reiteration of hysteric paroxysms will occasionally induce a morbid action of it, with delirium, and ultimately insanity,—more particularly where the exciting cause is referrible to blighted hopes and affections. And when I speak of this as a cause of mental derangement, I will venture, without fear of contradiction, to assert that *any* strong impression on the sensorium, or *any* passion in excess, may give birth to it, especially where there is a constitutional predisposition to the malady. Dr. Prichard (the late commissioner in lunacy) considered the passions and emotions the principal and most frequently productive causes of madness; and, in common with Pinel, Georget, and others, was of opinion that the moral causes predominate considerably over the physical. In the wealthy and well educated classes of society there can be little doubt of it, for obvious reasons; but amongst the poor and uneducated I believe that the balance will be found in favour of the latter; their intellect, rusty by disuse, is less under the influence of excitement: their feelings are more dull; their nerves less sensitive; and, unless roused into action by spirituous stimulants, their general susceptibility is less acute. Hence it is that amongst the savage tribes, where the mind is totally uncultivated, insanity is comparatively rare. Rush pronounces it to be unknown amongst the North American Indians. Intense study, on the other hand, is an occasional source of it; and the too close application and over-strained mental exertion in some of the forcing-houses for puerile intellect called "Seminaries," frequently lay the foundation of nervous disorders, and even of insanity, in those who are delicately constituted, or in whom an hereditary predisposition exists.

Rousseau considered reading to be the scourge of infancy, and would not allow his Emilius to learn a line by heart till he was twelve years old. Madame de Sevigny says also:—"Je suis persuadée que la plupart des maux viennent d'avoir le cul sur selle!" Children of the present age are sometimes too much confined; and if constrained (observes Dr. Darwin) to sit in the same place for hours together, are liable to acquire a habit of playing with their hands, feet, &c., called "tricks," to exhaust an accumulation of the irritability by which they are goaded.

Where the amount of study exceeds the capability of enduring it, especially in young subjects, fearful consequences may be expected. The susceptibility of the immature brain is stimulated at the expense of bodily power; the forced plant is watered with the blood of life, and nature's laws are violated irreparably. Thus, in alluding to the budding genius of "unhappy White," Byron exclaims—

"Oh! what a noble heart was here undone,
When Science self-destroyed her favourite son!
Yes, she too much indulged thy fond pursuit;
She sow'd the seeds, but Death has reap'd the fruit.
'Twas thine own genius gave the final blow,
And help'd to plant the wound that laid thee low!"

Dr. Andrew Combe observes, "I have lately seen several instances of insanity, and also of total incapacity for future useful exertion, brought on by long protracted and severe study, in subjects whose talents, under a better system of cultivation, would have raised them to eminence. Pope was a remarkable example of this. By excessive application he fell into that state of exhaustion which Smollett also once experienced—a "coma vigil"—a sort of torpid indistinct existence—an affection of the brain when the principle of life is so reduced, that all external objects appear as if passing in a dream; and it was only by giving up study and riding on horseback that he regained comparative health. Sir Humphrey Davy brought on a severe fit of illness by over-excitement of the brain in his chemical researches; and in his interesting life of him Dr. Paris has stated that "he was reduced to the extreme of weakness, and his mind participated in the debility of his body," (p. 183.)

It is the same with the brain as it is with the muscles: exercise strengthens and refreshes, but labour weakens and exhausts their power; and, as in the lamentable instance of Sir Walter Scott, where, in the decline of life, his embarrassed mind and circumstances compelled him to force the brain beyond what it was willing to supply, it sunk under the exertion.

Let me not, however, by these observations, be branded with the stigma of discouraging literary labour. A man may denounce intoxication without abjuring wine,—and a physician may prescribe opium with advantage, though an overdose may destroy life. The mind of every man is not only capable of, but improved by a definite proportion of exertion. Attention may be, and ought to be, kept up for a certain time; and, by frequent exercise, the study which at first occasioned fatigue may be protracted with facility and pursued with pleasure; and it is worthy of record, that mathematicians and philosophers have generally attained a considerable age,—so that even abstract calculation, or correct thinking, does not appear, with all these delirious visitations, to shorten the duration of life, or Sir Isaac Newton would have died long before he reached his 85th year. Mathematics have, in fact, been considered to be prophylactic of insanity, instead of inducing it; and Plato designated mathematical demonstrations the "purgatives of the soul." Certainly, as the late Sir Henry Halford observed, "nothing more entirely bars the intrusion of 'thick-coming fancies,' by occupying the whole mind, than mathematical studies; and he instances a physician who, whilst he was practising physic with great reputation in the country, became deranged. After a separation from his family of some months, he was advised to resume the study of Euclid, to which he had occasionally dropped hints of his partiality. He did resume it, and with the happiest effect, and recovered at length so entirely as to be able to recommence business in London, and to continue to practise physic until his death," (Essays, p. 134.)

A certain learned member of the present House of Lords, I am informed, is in the habit of seeking recreation of his mind from abstruse political studies, by solving quadratic equations and stiff problems. Lord Bacon advised that "if a man's wits be wandering, he should study mathematics."

The poet, on the other hand, (whose imagination is ever on the wing, whilst his reasoning powers are comparatively at rest,) is more liable to insanity than the philosopher; and it is a curious fact that, in one asylum which I visit, the great nephew and niece of one celebrated poet, the son of the author of a poem which has immortalized him, and John Clare, (the celebrated Northamptonshire rustic poet,) were all inmates at the same time The "Insanit, et versus facit" was frequently exemplified in Clare, even during my visitations; and I have by me several pretty poetical effusions written by him during his confinement there.

Religion, so called, or perhaps more properly spiritual intoxication, is another and a frequent source of mental aberration; and perhaps there is not an asylum of any celebrity, public or private, in which some unhappy victims of misguided fanaticism are not to be found. A mind that is by nature weak, and that having been overwhelmed with sorrow for the loss of relatives or friends, or other depressing events, and, early and deeply imbued with religious feelings, resorts to meditation and retirement for relief, is very liable to melancholia: still more, a man who has been awakened to a sense of contrition from a life of debauchery, by some serious illness, or by the impassioned appeal of clerical eloquence, and impressed with the idea that he has forfeited all hope of forgiveness by his misconduct, abandons himself to sorrow and despair, may be plunged at once into melancholy madness, or driven to a state of raving and distraction from which he may never be redeemed. I cannot recal to memory a more painful illustration of insanity than has been presented to my contemplation in the restlessness and horror manifested by this kind of patient; nor is there a more frequent cause of suicide.

"In minds broken down by adversity," says Dr. Burrows, "and little acquainted with its genuine precepts, a consequence opposite to that which was sought and expected from religion sometimes ensues. In this case the moral feelings have greater force than the spiritual, and the disappointment is not the default of the principles of the Christian faith. However natural it may be for a devout person to discredit that it is ever a cause of mental distraction, or for him who teaches that religion is the sole duty of life to disbelieve that too much enthusiasm *can* subvert the intellectual system, yet it is clear that, under certain circumstances, insanity *is* occasioned through the agency of religion." Enthusiasm and insanity bear such close affinity, that the shades are often too indistinct to define which is one and which the other. The over-zealous, consequently, should be taught to temper their fervour with discretion, and be reminded that the calendar of crime is stained with the blood which has been shed by its fanatical exuberance. It is not *Religion*, but the distortion of zeal, which is a very different thing.

Itinerant preachers, who, abounding in zeal but deficient in judgment, endeavour to frighten their motley and illiterate auditors by declamation, have frequently shaken reason from her seat, and laid the foundation of this distressing type of the disease. A young woman (for the softer sex are principally the victims) came under my care not long since, solely from listening to one of these spiritual empirics. Even divines of a higher order have exercised and evinced almost incredible influence on their congregation. Thus, during a funeral sermon preached by Bossuet, on the death of Henrietta Ann, the daughter of our Charles I., and wife of the Duke of Orleans, the writers of the time mention that "the whole audience arose from their seats; that terror was visible in every countenance; and that for some moments Bossuet himself was unable to proceed!" The Abbé Caron, who published the life of M.

Bridaine, the missionary, states that, at the conclusion of one of his sermons, at Magnole, on Hell, the auditors were so much affected that they all remained motionless; that for three days following his mission, all the town remained in consternation and mournful silence; and that, in the streets and public places, young and old men were seen lifting their eyes and hands to heaven, and crying aloud "Mercy! O Lord, mercy!" Butler states that he was present at a sermon preached by the late Dr. Hussey, the Catholic Bishop in Waterford; "that during one apostrophe the audience was agonized, and that at the conclusion there was a general shriek, and some fell to the ground," (Reminisc., p. 257.)

With such startling effects on the nervous system as these anecdotes of pulpit eloquence depict, it cannot be a matter of surprise that the brain should sustain a powerful shock, or that its equilibrium should be upset. I have adduced them as additional illustrations of the power of the mind over the body, and deem it unnecessary to enlarge on the *moral* causes of insanity. Amongst the *physical* may be enumerated hereditary predisposition, intoxicating liquors, congestion of the brain from frequent determination of blood to the head, coups de soleil, injuries to the head, narcotics, gastro-intestinal irritation, (of which I spoke in my preceding lecture,) epilepsy, apoplexy and paralysis, metastasis, scrofula and other causes of structural disease in the encephalon, masturbation, venereal excesses, and whatever tends to exhaust organic nervous power.

In mentioning *whatever exhausts organic nervous power*, as one of the physical causes of insanity, I find that I am concurring in opinion with Dr. Henry Monro, who, in a very able treatise recently published, asserts his opinion "that insanity is a disease of deficient nervous tone consequent on loss of vitality." Insanity is a disordered condition of the brain or mental instrument, manifesting itself in a disturbance of the *intellectual* faculties by what are termed hallucinations, or erroneous impressions or delusions [and designated *intellectual* insanity by the late Dr. Prichard]; or, a perversion of all the natural feelings, affections, and habits, without any assignable cause [which the same author calls *moral* insanity]; or, an entire absence of reason, in which the mind is more or less annihilated—in other words *dementia*. The usual divisions are *mania*, *melancholia*, and *idiocy*.

These three deviations from a healthy or normal condition of mind admit of varied divisions and subdivisions, according to the predominant form or character of the disease. The human mind is such a heterogenous mass of ideas and propensities, that when reason has lost her control, they break forth in various forms and degrees, rendering thereby a lunatic asylum a chaos of ungoverned passions, hallucinations, and delusions. Thus, under one roof, we find one man singing, another reciting, another standing apparently absorbed in thought, another melancholy and mute, another walking hurriedly, and muttering incoherently to himself, another full of tricks and mischief,—all and each of them regardless and unconscious of the absurdity of their deportment, and holding no intercourse with their companions, but each playing a part in the waking dream of his own disordered imagination. You are in a group of wakeful somnambulists; some will answer you if spoken to; others will remain obstinately silent; some will give not only a rational but a shrewd reply. Nor do madmen always lose the power of reasoning; on the contrary, they are frequently most acute. but their *Data* are erroneous: they labour under delusions,—and their imaginations convert fancies into realities, and so betray the imperfection of their intellect; for, being regardless of censure or of ridicule, they have no concealment, and therefore reveal their hallucination, and are kings, or deities, or statesmen, or poets, or anything else that may be prompted by their visionary impression; and it is in vain to attempt by force of argument to controvert the impression. This "tyranny of fancy's reign" is most vividly pourtrayed by that transcendant delineator of the human mind, Hogarth, who, in his last painting of the Rake's Progress, has represented the diversity with painful fidelity.

Can we, then, approach any nearer to a definition of insanity, asks Dr. Conolly, (an authority which admits no question and requires no praise,) than by saying that is the "impairment of any one or more of the faculties of the mind, accompanied with, or inducing, a defect in the *comparing* faculty." These self-styled kings, or statesmen, or whatever be their delusion, are unable to compare their assumed condition with the dress, or the society, or the situation in which they exist. Their reasoning faculty may not be wholly lost, but they are blind to the absurdity of their assumption. Their data are erroneous, and what reasoning powers they may possess are exercised on the vision of their imagination. Converse with them on other topics, and they may appear very rational beings; yet in each case there is a diseased state of mind; and this insane belief (arising as it does from a want of power to compare things which *are* with things which *are not)* constitutes their insanity.

Dr. Millingen attended a judge in the West Indies who fancied himself a turtle! This ridiculous impression did not prevent him from sitting on the bench, nor from the fulfilment of his judicial office.

There is no end to the variety or extravagance of delusions in this class of lunatics. A patient now in Mr. Tomkins's asylum at Witham, in Essex, though he answers rationally when you converse with him, is tortured day and night with the impression that he has little devils in his stomach, and that they talk to him and tease him. He was actually crying with vexation when I visited him last week, and asked me if I could not hear them. Even Luther fancied the devil was in him, and that he heard him speak. Dr. Ferriday, of Manchester, Dr. Elliotson informs s, had a patient who imagined that he had swal- wed the devil; and so benevolent was he in his eling, that he would not discharge the contents f his alimentary canal, lest he should let him ose on the world. Bishop Warburton, in a note one of his works, speaks of a person who ought he was converted into a goose-pie; and r. Arnold saw a man who fancied himself in the mily way. Even the celebrated Pascal was the bject of a false delusion, and was so entirely npressed with the apprehension of being on the dge of a precipice that was before him, that he sisted on being tied into his chair. This was, s Shakspeare forcibly expresses it in Macbeth—

> ———————“A false creation
> Proceeding from the heat-oppressed brain.”

Very many highly interesting instances are de- ailed in Dr. Conolly's inquiry into the Indica- ions of Insanity, all tending to show how per- ons may be deranged on *one* or more subjects, hile the rest of the faculties are sound; or how hey may be deranged on *every* subject,—in which ase they display a wild association of ideas and nconsistencies.

Their *Propensities* also break forth in exagger- ted disorder, and the depravity of their feelings is often variously manifested, whilst their intellec- ual faculties are comparatively little affected. They have sudden impulses, and probably destroy their children, or their nearest relations, or their sovereign, and with, perhaps, the best possible intentions. A strong instance of this occurred in the person of Hatfield, and with which I will conclude this catalogue of examples; but it is combined with such an extraordinary instance of memory, that it is deserving of record. The late Mr. Baron Garrow asked me, in the year 1825, to visit Bedlam with him. On entering the hospital accompanied by Mr. Wright, the resident medical attendant at that time, and hearing from him that Hatfield was still there, and that we should see him, Baron Garrow cautioned us not to mention his name, observing at the same time that he was counsel for the prosecution on Hatfield's trial, although from the circumstance of twenty-five years having elapsed, and his never having seen the prisoner either before or since that time, (and then, of course, only in his wig and gown,) it was not to be expected that he should be recognized. Scarcely, however, had we been three minutes in his apartment, when Hatfield, fixing his fierce eye upon the judge, asked him if his name was not Garrow? On being answered in the affirmative, Hatfield said, “Then, sir, I have one favour to ask of you, which is, that as you were instrumental to getting me imprisoned here, you will exert yourself to get me set at liberty!” Garrow then asked him why he had committed this act of high treason on a king who was so highly respected and beloved? To which Hatfield replied, “Because I wished to make a *God* of him!” Many parents have murdered their children from similar infatuations, or to rescue them from a sea of sublunary cares and privations; and the newspapers of the present day have been recently stained with some of these unnatural records.

In very many instances the seat of irritation appears to be in the cerebellum; and all feelings of morality and decorum are prostrated at the shrine of concupiscence. This form of the disease generally leads to a state of fatuity, and terminates in epilepsy, convulsions, and paralysis. In cases of insanity, generally, but perhaps more especially in cases of this character, I have observed a peculiar effluvium to proceed from patients; so much so, that were I to be unconsciously placed where several are congregated, I could at once detect my position. This peculiarity does not appear to be generally noticed by authors, and may probably be occasioned by the influence of the disordered brain on the secretions, unconnected with any want of cleanliness.

To enter into all the divisions and subdivisions of different authors, in their attempts to classify the various forms in which insanity presents itself, would be a work of supererogation in a lecture, and a tedious occupation of attention and of time. Regnault, in his “Competence des Médecins,” says—“Les médecins ont voulu classer les Nuances de la Folie, c'est à dire des choses aussi peu susceptibles d'être classées que les Nuages! Quel en a été le resultat? C'est que des mots Grecs ont été substitues à des mots Français, intelligibles pour tout le monde, et des idées contradictoires reunies dans le même mot!” Medical jurists usually class the different forms under the four heads of Mania, Monomania, Dementia, and Idiocy. Nevertheless, medical jurisprudence too frequently enters into subtilties which only serve to perplex a jury, who, from never having given their attention to mental pathology, are of course entirely ignorant of its varieties. These distinctions are occasionally required on a cross-examination by a barrister, with a view to obtaining a verdict for his client, by ingeniously upsetting the evidence which has been elicited by the opposite counsel: he endeavours to entangle the medical witness in the snare of *Definition*—a Charybdis in which the unhappy victim will in all probability be swamped,—“a question which,” Dr. Paris observes, “a medical witness is always called upon to answer,” it being very difficult to define the invisible line which divides perfect and partial insanity; or he runs him upon the rock of *lucid intervals*.

“To constitute insanity it is not necessary,” as Dr. Male says, “to exhibit the ferocity of a wild beast, nor to perform the antics of a buffoon;” *they* speak for themselves. The grand question in a court of law is to decide whether a party be of sufficiently sound mind to manage his property; or (on being tried for murder or other violation of the laws) whether he was conscious of the crime he was committing—whether (in other words) he was in such a state of mind as to render him a responsible agent. The verdict (according to Sir Matthew Hale) “must rest upon circumstances duly to be weighed and considered, both by the judge and jury, lest, on the one side, there be a kind of inhumanity towards the defects of human nature, or, on the other side, too great an indulgence given to great crimes."

That it frequently requires close study, acute perception, great tact, and considerable experience, to arrive at a just discrimination, must be admitted by every one. In addition to which, several interviews may be indispensable before a physician can give a satisfactory opinion; for lunatics are extremely cunning. Many have lucid intervals, (excepting in a state of utter idiocy or imbecility,) and their state of mind varies under different circumstances and positions; so much so that a commissioner would incur a heavy responsibility who should decide a testamentary dispute, or subject a criminal to execution, or even discharge a patient from confinement, without ample previous opportunities of interview and investigation. The physician must adopt his own plans for the attainment of what is required of him, and may bear in mind that which was suggested by Shakspeare in Hamlet:—

> ———————" Bring me to the test,
> And I the matter will *reword*, which *madness*
> Would gambol from"—

a test which Sir Henry Halford states that he found efficient, and which he instances in his Essay on the subject. Professor Taylor also wisely observes, in speaking of wills made by old persons, where, in consequence of alleged imbecility, some disappointed expectant has disputed the will:—" If a medical man be present when the will is made, he may easily satisfy himself of the state of mind of the testator, by requiring him to repeat from memory the way in which he has disposed of the bulk of his property. If a dying person cannot do this without prompting or suggestion, there is reason to believe that he has not a sane and disposing mind," (p. 660.)

In cases of murder, the fashionable plea of insanity or monomania is constantly adopted by the counsel for the defence, and in a great majority of instances with success, partly on the score of humanity, and partly in consequence of the prevalent modern antipathy to punishment by death. It is not, of course, my province to enter on a discussion of the validity of this perpetual plea. Each case must rest on the individual facts which appear on the trial. Justice should not, however, succumb to misplaced lenity, or to legal ingenuity; nor should a mawkish consideration for the murderer rescue him from the atonement which the bible authorizes and the legislature demands.

In alluding to the plea of Monomania, many persons consider it to be a state in which the mind is perfectly sound except on one particular subject; and this construction would appear occasionally to have been substantiated by cases which have been recorded. The barrier, however, between sanity and insanity is not so entire but that some few breaches may be detected. It is, in fact, only a species of moral insanity; but the erroneous impression on one particular point is so strongly marked, as to throw the general character of the mental alienation in the shade. The mind is concentrated on one object or train of ideas, so that the insanity is partial. It manifests itself sometimes in a propensity to theft, sometimes to arson, sometimes to homicide; and the subjection of such a criminal to legal punishment must depend on the general evidence of consciousness of action.

Some persons are only guilty of felony when under the influence of spirituous liquors, and then become dangerous to society. A question naturally presents itself whether such person can be legally detained in an asylum. I have known several instances of this; and a patient is at this time under confinement in one of the asylums of which I am the visiting physician, who attempted to murder his wife, but in whom no evidence of insanity is discernible under the regimen and diet of the institution. A prisoner is now in Chelmsford gaol, and has been there for the last fifteen years, for murder, under the influence of intoxication and passion; and though he was acquitted at his trial, on the ground of insanity, he never evinces it now. If, however, a man, under the influence of ungovernable anger, has *either* taken, or attempted to take, the life of a fellow-creature; or, if prone to intoxication, and when intoxicated, his self-control and reason are not sufficient to restrain him from homicide, public safety demands his confinement. He *subjects* himself, when at liberty, to one of the leading physical causes of insanity, and becomes insane, being only sane during the lucid intervals of sobriety. Such subjects, Baron Garrow told me, ought undoubtedly to be under restraint.

To return, however, from this digression on medical jurisprudence, let us take a short view of mental pathology: and here Science receives a check, and Philosophy is staggered—for whilst extensive necroscopic examinations furnish a vast variety of disease in the encephalon of the lunatic, many instances of confirmed and protracted insanity can be adduced, in which no vestige of disease could be detected, and where all the ravings and distorted features of this fell disease have passed away,

> " And, like the baseless fabric of a vision,
> Left not a wreck behind!"

How is this? Has the perturbed tenant left its cell without injuring its material encasement? Has the sword lost its edge, and rusted in its scabbard, without the scabbard participating in the ravage of time and circumstance? What can we say in answer to this query, than that

> " There are more things in heav'n and earth
> Than are dreamt of in our philosophy."

Amongst the principal diseases of the brain in the subjects of insanity, are—evidence of inflammation and its sequelæ in the tunica arachnoidea and pia mater, viz.: thickenings; serous infiltration; and more or less vascularity; injected state of the brain and its convolutions; morbid anges both in its cortical and medullary subnce, with increased firmness of consistence of th. In others, a softening of its substance; rum in the lateral ventricles; changes in the rves proceeding from the brain; the bones of e cranium thickened, and harder than is usual, th inequalities in the cranial cavity; alterations the structure of the pineal gland and the annur protuberance, &c. Many other appearances ve been represented as existing; for, as has een observed by Esquirol, "The inspection of odies of lunatics offers numerous varieties as to tuation, number, and kind of morbid appearnces. The lesions of the encephalon are, hower, neither in relation to the disorders of the ind, nor to the maladies complicated with it. ome lunatics, whose mental and bodily disease ad given suspicion of extensive organic lesion, ave presented but slight changes of structure in he brain; whilst others, whose symptoms had been less severe, have been the subjects of great and numerous alterations. But what disconcerts all our theories (he adds) is, that not unfrequently, even in the instance of patients who have passed through all the stages of insanity, and have lived many years under derangement, no organic changes whatever have been traced, either in the brain or its containing membranes."

Dr. Millingen expresses himself of the same opinion, and still farther observes:—"All the organic lesions found in the insane may be also observed in subjects who had been free from mental alienation!"

Dr. Haslam details the morbid appearances on the dissection of 38 cases, in *all* of which there was more or less structural disease. Mr. Lawrence detected the same in 100 consecutive cases that came under his inspection at Bethlem. Mr. Davison, the house-surgeon at the Lancaster Asylum, after a careful examination of more than 200 patients who died in that hospital, says that he scarcely met with a single instance in which traces of diseases in the brain or its membranes were not evident: the pia mater and the cortical substance were the parts most frequently diseased. Dr. Conolly is (I believe) of the same opinion.

It would be easy to recount an extensive catalogue of anatomists and pathologists who have favoured us with the results of their researches, and with their comments and inferences. Martinet appears to have connected the symptoms which have manifested themselves during life with the appearances which have presented after death as clearly and concisely as most authors.

In cases of insanity consequent on physical causes, such as inebriety, blows on the head, &c., it is most probable that they arise from a greater or less degree of inflammation of the brain or its membranes; and so far I entirely agree with Bayle, to whose authority, from his researches and practical knowledge acquired at the asylum at Charenton, much respect is due; and that such cases, when early submitted, yield to the treatment, in accordance with his theory, is a strong proof of its correctness. Dumas, Calmeil, Vogel, and other high authorities, entertained similar opinions. Hatfield was acquitted on the plea of insanity referred to a wound in the head, which he received in action. For this reason, when it can be established, in cases of murder or felony, that the culprit has formerly sustained a wound or injury to the brain, an acquittal on the ground of insanity for the most part follows. The well-known consequences also of inflammation, which so frequently are observed in post-mortem examinations, such as vascularity, thickening, effusion, &c., corroborate the connection of insanity with what he terms Meningitis. But irritation may also produce it in a high degree, and yet leave no visible vestige. We know that excruciating pain attends neuralgia, and yet no organic lesion in the nerve affected is discoverable; and, inasmuch as the nerves are processes of the brain, surely the analogical inference may be admitted.

Functional disorder may exist in any organ without structural lesion; but although anatomy may shed no light, nor reveal its cause, the *existence* of disorder is not to be discredited.

There may be a maniacal *Diathesis* as well as a gouty or scrofulous diathesis; and where the disposition is hereditary, this is most probably the case,—and then a slight cause will be productive of its manifestation.

Failing to demonstrate the union of insanity solely with cerebral disease, many pathologists sought for elucidation in the viscera; and the præcordia, the intestines, the liver, the spleen, the uterus, &c., have in turn sustained the etiological imputation; and some modern authorities refer it to the vascular system. Pinel himself considered the abdominal viscera mainly implicated, whilst others assign it to the ganglia and sympathetic system.

I have already alluded to the action of gastric irritation; and the fact that hypochondriasis, melancholy, and even suicide, result from the depression contingent on hepatic affections, cannot be doubted or denied. The frequency of diseased liver in lunatics has been often noticed in the autopsy of lunatics; this may, however, have been sometimes simply the result of that system of intoxication which has terminated in madness, and so extensively induced it.

In treating on Lunacy, and inasmuch as its etymology would seem to convey that the moon exercises an influence on the disease, and as the question is frequently mooted, it may not be irrelevant to offer a transient notice of it to your attention. It has certainly been generally admitted that the changes in the weather and in our system are connected with those of the moon—an opinion which, whether true or false, might naturally originate with men who were necessarily most attentive observers of everything associated with lunar changes when lunar changes were their sole almanac. In an unlettered age they regulated the movements of the shepherd's life; and whole tribes worshipped this "queen of heaven" with abject veneration, as presiding over every atmospheric phenomenon; and their opinion of her influence over our earth was probable and natural. That the moon has an effect on the tides of the ocean, is undisputed; and surely it is reasonable to suppose, *à priori*, that an influence so powerful as this must also have an influence over atmospheric changes; and to this day (whether or not arising from an indirect operation of the moon) changes of weather more frequently are observed to occur at certain lunar periods than at other times. It is ascertained that the mean barometrical pressure attends the first and last quarters, while its extremes accompany the new and full moon. The electroscope also indicates corresponding changes; and from the observations made by Dr. Allen, of the York asylum, and subsequently of High Beech, amongst hundreds of insane patients for a series of years, he told me that he arrived at the conviction that an excited and unsettled state of mind prevailed more, on an average, at these times than at any other. Lunar phases are by many thought to influence EPILEPTIC lunatics, but not to act upon cases of mania or dementia. Shakespeare says:—

> "Sure 'tis an error of the moon, that comes
> Nearer unto the earth than she is wont,
> And makes men mad!"

We spoke (in the first lecture) of the effects of atmospheric electricity on the nervous system,—and though I willingly concede that the influence of the moon, through the medium of any change in the mechanical pressure of the atmosphere, is so inconsiderable as not to repay us for the trouble of its investigation, yet even this lunar influence is admitted by the best meteorologists of the day. There are few, however, who give much credit to the influence of the moon on insane patients.

The relative proportion of male and female lunatics is a question which naturally presents itself when the subject of insanity is before us; but a difference in opinion prevails in this as well as in most things, and the comparative frequency appears to vary in different countries. In Great Britain the proportion gently inclines to males. In France to females. In Germany to males. In London and Middlesex to females. In the sum total of lunatics in the Asylums of various parts of the civilized world, Esquirol calculated 37,825 males, and 38,701 females: the equality is remarkable,—but when the causes of respective liability are considered, the balance appears to be equal; for although the nervous susceptibilities of women may subject the softer sex to a greater incursion of moral insanity, the proneness to inebriety in man (acknowledged, as it is, to be so frequent a physical cause) would give them the predominance. Alienation of mind is observed, however, at an earlier age in females, and the uterine functions undoubtedly subject them to a large exclusive additional liability; they are also more under the influence of superstition and emotion from different causes; but then their minds are less subject to the ravages of speculation and perplexing pecuniary negociations, intense thought, and its anxieties. The predominance of the malady in men in *England* may partly attributable to the women being mo soundly and religiously educated, to their bei more domestic, and less subjected to the exci ments of gaiety and mixed society than in Fran On this principle it may be explained why ce bacy presents a preponderance of lunatics ove persons in married life. When persons are married, *Le jeu est fait!* and therefore they are mor settled, and exempt from those hopes and fears, those disappointments and anxieties, which are a perpetual source of excitement to the young and single, who have not yet turned over the principal leaf in the book of life. The statistics as to the ages in which insanity prevails, (which is from 20 to 40,) may moreover be admitted in evidence of the prevalence of passion and emotion as inducive of mania.

It may be difficult, however, to say at what age reason usurps her sway over passion, and subjugates her. Suffice it to observe, that few objects are more revolting than "the silver livery of advised age," so polluted with morbid juvenile propensities.

> "Possent ut juvenes visere fervidi
> Multo non sine risu
> Dilapsam in cineres facem."

This is, however, not an unfrequent type of *senile insanity*. As a general rule it may be held that mania in all its forms of excitement appears chiefly in early life, melancholia in middle life, and dementia towards the close: the form of insanity varying much with the respective temperament of the individual, and mostly imbued with the hereditary taint.

Be this as it may, *our passions* may be *considered the chief causes of Insanity*, producing stimulating or depressing effects, which act most generally both on our physical functions and our mental faculties. This circumstance explains the extreme rarity before, and the common prevalence of madness after, puberty, when our relative social condition exposes us to the influence both of our natural passions and their artificial aberrations. When intensity of thought has brought on incoherence, such a confusion prevails in the mental impressions, that no distinct recollection of former circumstances appears to exist. Hence the fact, that subjects who have been insane from disappointment in their fondest attachments rarely mention the name of the object of their love. When they do recollect the person's name, and *appear to be grieved* when it is mentioned, (however violent their outbreakings may be,) we may entertain the most sanguine hopes of recovery. A young man, the only son of his widowed mother, and to whom he was most piously attached, was suddenly restored to sanity on being loudly and abruptly told that his mother was dead! He burst into a flood of tears, was awakened to a sense of his temporary delusion, and reason regained her seat. The sensorium in mania is so susceptible, that violent action may restore sanity or may extinguish vitality; but such sudden terminations are rare occurrences. The duration of it is extremely various. It may remit, or intermit, and these durations of excitement constitute what are termed "lucid intervals." The patient appears to be restored, but the ray of light is often transient and fallacious. It is nevertheless cheering to observe the light of reason breaking in upon the benighted mind, evincing as it does, that though reason may have abdicated her throne for awhile, her restoration is not only probable, but at hand.

After a careful consideration, it appears, as Dr. Burrows observes, that the prognosis may be summed up in the following order.

Recovery may be anticipated in proportion to the youth of the patient, and the recentness and comparative mildness of the attack.

The chances of recovery are greatest in the first attacks, and diminish with each subsequent invasion, and with the duration of the disease and advanced age of the patient.

Mania is cured most frequently—next melancholy and monomania—lastly and the least, dementia and fatuity.

Melancholia is difficult of cure in proportion to the degree of depression—a dread of poverty, of poison, and perverted ideas of religion, indicating an obstinate disease.

Chronic insanity seldom recovers.

Puerperal mania generally.

Insanity with a propensity to suicide is a favourable form, if recent, and coming under early treatment.

Acute dementia is curable—chronic dementia and insanity not so.

Hereditary predisposition protracts and diminishes the chances of recovery, but does not entirely prevent it.

Relapses are, however, more to be expected when it exists.

An amendment of personal appearance attended by improvement in mind, indicates recovery.

When the insane preserve or acquire all their physical functions, and eat and rest well, presenting their usual appearance *without recovering their faculties*, recovery is hopeless.

Insanity caused by excessive study, by the slow operation of moral emotions, or attended by hallucinations, by pride, &c., is seldom cured.

Complications with apoplexy, palsy, and epilepsy, are incurable and fatal.

Men are more liable to relapses than women, and one half of all relapses occur in the first three months after recovery.

LECTURE III.

Statistics of Insanity — Marriage — Necessity of Early Treatment—Mortality—Danger of Depletion—Pathology—Medical Treatment—Dr. Conolly— Dr. Monro—Healthy Condition of the Insane—Advantages of kindness and confidence —Illustration—Suicide—causes of—Hereditary predisposition—Prevention— Idiocy—Speech of Lord Carlisle.—Conclusion.

In taking into consideration the leading characteristics and powerful agency of that gift of God which constitutes the supremacy of man over the rest of animated nature, *The human mind*, I began by attempting to give a sketch (how brief soever and imperfect it might be) of its physiology. I traced a feeble outline of the different leading theories of its mode and power of acting on our corporeal organization; illustrating the abstruse consideration by examples of its effects—its agency in generating diseases—and its connection with various mental passions and emotions. I subsequently took a cursory view of the phenomena of its morbid condition, viz. *Insanity;* and I now, in conclusion, propose to resume the subject of what must undoubtedly be considered the most awful visitation which "flesh is heir to." It is much to be lamented that mental alienation, in one form or another, is and must be perpetually on the increase, for, endowed as it is with an hereditary property more inherent than any other malady, it travels (though "haud passibus æquis") with the increase of population; and I believe that I am not guilty of exaggeration when I state that there are now no less than 80,000 persons in Great Britain and Ireland who are thus afflicted. Dr. Burrows, to whom I have frequently alluded, and whose authority is quoted by all modern writers on the subject, calculated that in six-sevenths of the whole of the patients under his charge the cause was traceable to hereditary disposition. Much of this is attributable to intermarriage, especially in the highest circle of society, where corresponding rank is a principal incentive to that state; and it is distressing to observe how the young of both sexes will rush to the embrace of their wealthy and aristocratic admirers, if a coronet but form the crest, though insanity and scrofula may be the supporters to their arms! Should the families of *both* sides be liable to insanity, the probability of this sad heir-loom is, *à fortiori*, doubled, and the manifestation of the disease will probably be doubled also in the offspring of persons

> "—————mox daturos
> Progeniem vitiosiorem."

Yet, though Insanity is ever on the increase, for reasons just stated, it is equally true and satisfactory to feel that, since it has become the subject of deeper study and closer observation, our knowledge of the treatment and general management of its victims is much enlightened and improved. An erroneous idea once prevailed that it was commonly incurable; and the melancholy subjects of this infirmity were shut up in dungeons and dark cells, and subjected to coercion and cruelties on which it is painful to reflect. "Cribb'd, cabin'd, and confined," no effort was made to restore their intellect, or contribute to their comfort. They passed their gloomy days and wretched nights, year after year, in straw and darkness, till death in mercy came to liberate them from a state of utter hopelessness and unremitting suffering. No commissioners visited them—no friends were permitted to approach them—and the melancholy all that awaited the poor wretches who were consigned to such infamous Bastilles was

> "Lasciate ogni speranza, voi ch' entrate!"

Thanks, however, to the enlarged philanthrophy and enlightened aggrandizements of medical science of the present day, this national disgrace is swept away; and the statistics of insanity clearly show that a very large proportion of the insane are now restored to the light of reason, and to the use of all their faculties. Dr. Prichard states that, in *recent* cases, the proportion was 7 out of 8 in the York Retreat. The different forms of the disease are now more deeply studied; their causes ascertained; their differing character met with appropriate medical and moral treatment; and society is enriched by the resuscitation of many a valuable member that had else been for ever lost to it. So amenable, in fact, is it now considered to proper management, that were it possible to obtain an exact comparison of the number of recoveries from other diseases with those of insanity, more would be found to recover from this than from most others. *Early* treatment is, however, so indispensable to rapid recovery, that, were the same prompt attention given to insanity that is generally given to other diseases, still happier results might ensue; but the invasion of mental derangement is often so insidious, and the relatives are so disinclined either to admit its existence, or to reveal it to any one, that the affliction is neglected till its real character becomes unquestionable. But why? as Horace says,

> "————————————Nam *cur*
> Quæ lædunt oculum festinas demere; si quid
> Est *animum*, differs curandi tempus in annum?"

Such, however, is the case;—and the malady, becoming more confirmed by duration, is proportionally more difficult of cure. In estimating the Prognosis, it will be necessary to review the particular species, the predisposing or exciting causes, the simple or the complicated character, the age, sex, and constitution of the patient, as well as the duration of the disease—for the curability mainly, as I say, depends upon these circumstances. I gave a summary of them at the close of my last lecture, in accordance with the observation and experience of others as well as with mine own; and the complexion of the malady is now so well understood, that the classification of curable and incurable patients is readily made in every asylum. The cure, however, is not always either permanent or complete. Relapses and recurrences are ever to be apprehended, and each relapse increases the tendency in proportion to the inherent liabilities of the person, or the excitement of the occasional cause. Sometimes recurrences appear to be periodical or intermittent, and I know one case in which the person so afflicted was so aware of the approaching visitation that he always presented himself for admission at a private asylum before each crisis arrived, and requested to be taken care of! The difference between a Relapse and a Recurrence is that, in the former, the symptoms can hardly be said to have entirely disappeared ere they present themselves afresh: in the latter, the restoration to sanity has been complete. The return in both cases generally arises from exposure to what originally induced it, be the cause what it may, and is ushered in by the same symptoms that first indicated its existence. The longer and the more complete the recovery, the less is the liability to a recurrence, and as the frequency of recurrence or relapse arises mostly from premature discharge, patients should be considered exempt from every indication some time before their *Exeat* is signed. Recovery from mania is mostly gradual—a mitigation of the intense symptoms becomes observable, with occasional lucid intervals. Sometimes it is sudden. I gave an instance of it in my last lecture, from the abrupt and sudden intimation of a parent's death: but this is not common. The removal of patients from their own home, and from the circle of their own family, will frequently produce a rapid and strong impression on the malady. The new scene, and the attendance of strangers on patients, awaken the inward inquiry into their situation and position; and the raving state which had hitherto prevailed will lapse at once into a state of tranquillity and silence—"a consummation devoutly to be wished." Where, indeed, the excitement is inordinate, seclusion and confinement become indispensable. By seclusion, I mean simply the removal from noise, or any other excitement, to a quiet apartment, till this turbulent manifestation has subsided; and at the Asylum at Hanwell we find that there are apartments on purpose, the walls of which are all padded, and the floor protected by bedding, so that all possibility of a patient injuring himself is entirely obviated, whilst the irritation of coercion is at the same time avoided. These *derniers ressorts* are, of course, only in extreme cases.

It appears extraordinary that an organ like the Brain, endowed as it is with all the phenomena which regulate existence, and which is so indispensable to life that even the slightest pressure on it simulates death, and annihilates all power both of mental and bodily action, *can* be so utterly disordered as to require incarceration year after year; and that, notwithstanding the privation of its principal functions, life should be protracted in so many instances to so late a period as maniacs attain,—that its intellectual office, in other words, should be totally suspended, and its physical continue unaffected! Yet so it is in some few instances, as the census of the continental asylums, as well as those of this country, can prove. In e comparatively few cases in which longevity ccurs, the solution of the problem must be in the trength of the constitution, the absence of any ental anxiety or feeling, and the regularity of fe; nor must we omit the care and attention aid to the health of the inmates of an asylum. r. Kitchener used to say that "Glass will last s long as iron if you take care of it;" and erhaps nothing conduces more to longevity in urselves (I speak on the presumption of our ot being insane!) than regularity in our regimen s well as in our diet. The average mortality I elieve to be about 1 in 4, and those who feel an nterest in the subject have only to inspect the egistry of different asylums and make the calculation: suffice it to say that, in the aggregate (though there are many exceptions,) the mortality f the insane very far exceeds that of an opposite condition, independently of the many fatal complications to which insanity is liable. Of these, by far the most frequent are Apoplexy and Epilepsy, and their concomitants, Paralysis and Convulsion; and these constitute, moreover, the principal fatal terminations. Very many sink from exhaustion, or, as Dr. Henry Monro terms it, "depression of vitality," accompanied sometimes by a general serous effusion and infiltration—the vital energy is exhausted, and the flame goes out because there is no more oil in the lamp. This is especially the case in Melancholia, and also where Mania has degenerated into dementia and idiocy; and inasmuch as insanity is a disease based on debility, such a termination may naturally be apprehended, especially where it has become chronic. In incipient or acute cases there is gradually more or less inflammatory action, with a vascular condition of the brain or its membranes; but then it is of so asthenic a character as not to sanction Depletion in its general acceptation. A few leeches to the head may relieve, and very often do relieve, and the same favourable result is derived from cupping; but the lancet is very seldom admissible, even in raving cases, and is now scarcely ever used. In puerperal cases, or in delirium tremens, we may almost pronounce it fatal, and a discrimination must always be made between inflammation and irritation. The latter state is that which mostly obtains in insanity, and universally in the forms which I have just mentioned. If blood be abstracted, it very rarely exhibits a buffy coat; and what alteration may be observable occasionally, is rather to be explained on the ground of that violent exertion and mental excitement which Hunter affirmed would alter more or less its properties. I attended a case of violent mania not long since, in which blood had been copiously taken by the lancet, and the arm had bled afresh after the surgeon had left the house. I found the patient bathed in profuse perspiration, violent as ever, and restrained by a straight waistcoat;—next day he sank and expired. A post-mortem examination was refused. But in very recent cases (and this was only of three days' duration) it frequently happens that no disease of structure can be detected. In no class of diseases is this more frequently the case than in those of the nervous system. The structure of the brain and nerves is so extremely delicate, and there is something so subtile in their mode of action, that considerable disturbance often arises in their functions without our being able to detect a corresponding physical cause. Many of their disorders are consequently termed *functional*, as we cannot demonstrate to any certainty on what species of diseased structure the various forms of insanity depend. The dura mater, except in cases of violent injury, is comparatively little affected.

In Arachnitis we have generally a complete suspension of the mental faculties, and symptoms which progress from disordered intellect to that of complete destruction of it. There is also coma, accompanied with convulsion, and subsultus. In the *chronic* form, first described by Bayle, the leading character of the attendant delirium is a "heightening and exaggeration of all the ideas." But this state of phrensy gradually subsides into mental alienation, impeded articulation, &c., running on to progressive paralysis both of body and mind. The French pathologists inform us that delirium is more to be expected where the superficial part of the membrane, on the convexity of the brain, is inflamed; but that Coma, Trismus, and Convulsive affections, indicate the Basilary portion to be the seat of disease. The membrane sometimes exhibits *patches* of inflammation; at others the inflammation is more extensively *diffused*, attended with opacity and thickening, and with *adhesion*, consequent on the deposition of albumen or lymph; and it is to the affection of the membranes rather than to that of the brain itself that Bayle, in his "Maladies du Cerveau," attributes insanity, and conceives that the subsequent effusion of serum is (by its pressure on the substance of the brain) the cause of the paralysis and dementia in which it so often terminates. The pia mater is subject to the same indications of disease as the tunica arachnoidea; and with these acknowledged evidences of membranous inflammation it appears strange that copious depletion should not be found advisable, but so it is. Then, again, there is great expenditure of the nervous energy where the brain (from whence all nervous energy proceeds) is thus seriously excited; and this, in my humble opinion, is a main reason why depletion cannot be borne,—why sudden prostration is likely to succeed,—and why death follows fast upon it. Depletion may, and very often does, induce a temporary mitigation of all that tension, throbbing, and other sensations of plethora, which accompany early and acute mania; and those who are comparatively little experienced in such causes are induced to repeat the bleeding, should the vis vitæ and vis nervosa be not knocked down by the first bleeding. In inflammation of the pleura, or peritoneum, or other serous membranes, our mainstay is the lancet, and the loss of blood at times necessary to rescue the patient from the grave is scarcely credible. In the Medical Gazette of March 1828, I published a successful case of pleuritis under my care, illustrative of such active treatment, in which one hundred and sixty ounces of blood were taken in five days. Dr. Blundell has also recorded two successful and similar cases, in which a gallon and a half of blood were abstracted in the same short period.

In reports of the Ardent Fever (the Καυσος of Aretæus) of the West Indies, Mr. Comrie, a naval surgeon, says,—"In the course of three or four days above two hundred and fifty ounces have been taken away, and always with success when timely application was made." Here, however, there is no exhaustion of nervous power; the inflammation is confined to a membrane remote from the brain, and unconnected with it; and depletion must be carried till that inflammation is subdued. The physician, must, therefore, use his own judgment in the treatment, taking care not to confound arachnitis, as an idiopathic affection unconnected with mental aberration, with the delirium ferox of insanity, and the supervention of inflammation on it. What I particularly mean to express is, that although post-mortem appearances in Mania frequently give undeniable evidence of inflammation having existed, and although early depletion may be, and is necessary to a certain extent (especially where the subjects are young and plethoric, the invasion of the attack sudden and acute, attended with strong arterial action, heat of scalp, contracted pupil, and intolerance of light and sound, &c.,) the greatest care should be taken not to exhaust nervous energy to such an extent as to endanger the attacks degenerating into irreparable dementia. Pinel was so apprehensive of this result, and so awake to the deceptive character of vascular plethora in the brain, that he opposed bleeding most strenuously, as tending to retard recovery, and even to render recovery doubtful. Esquirol partly coincides in this opinion, but relied more on leeches occasionally; Dr. Rush was particularly blood-thirsty; and Dr. Haslam placed much reliance on it, but not to the extent recommended by Dr. Rush. Dr. Prichard believed the cases to be very few which would yield to large depletion, and considered that the existence of the patient would be much endangered by it. Dr. Burrows (who, following the example and trusting to the experience of others, tried depletion for several years) admits that he discovered his error, and became so cautious in advising it that he scarcely ordered venesection in six cases of mania or melancholia in the same number of years; and that since he changed his practice the cases had been less intractable and less tedious, for he remarked how suddenly the strength of lunatics gave way on general bleeding!

It sums up (as I said before) in this,—that the physician must exercise his own good judgment on this most knotty point in practice (not only in this but in every case, viz. the propriety or impropriety of bleeding,) and prescribe in accordance with it. Suffice it to add, that Dr. Monro, Dr. Conolly, and other eminent physicians of the present day, who have devoted themselves to cases of insanity, deprecate the lancet altogether.

With respect to the substance of the brain, the leading alterations in its structure consist principally of increased firmness of consistence, or of the opposite condition, termed ramollissement or softening; and some pathologists are of opinion that either condition may terminate in its opposite. Both are the result of inflammation. Paralysis is the common result of Ramollissement, and when these are combined it is needless to observe how utterly hopeless the case must be.

Lesion of the cortical substance appears to be mostly connected with the intellectual functions, and disorganization of the medullary to affect more of the motor powers; but disorganization of cerebral substance may exist to a considerable extent without any manifestation of it during life, and large quantities of the brain have come away after severe fractures of the cranium without any deterioration of the intellect. Instances of this are recorded in the Edin. Med. and Surg. Journ., and I have heard also of a boy, who, on a portion of the brain coming away through a fissure in the skull, consequent on violent injury, coolly requested that it might be sent to his schoolmaster, in refutation of the schoolmaster having often told him "that *he had no brains*,"—a point in which they were quite at variance! In a word, great difficulty, uncertainty, and difference of opinion, exist on the physiology and pathology of this important organ, notwithstanding the results of dissection and all the researches that have been made: and more experience is yet necessary, and more study must yet be devoted to it, ere we can decide positively on the contingencies of function and lesion of this empire of reason and the soul! The only method (the late Dr. Baillie told me) of advancing medical science, is to compare the appearances after death with the symptoms that manifested themselves during life, wherever and whenever an opportunity presents. But public Hospitals and Institutions are the only places in which anatomical investigations can be efficiently made.—In private practice it is always unpleasant to make such a proposal, and, when made, the chances are much against its being granted. I can only say, with respect to myself, I have been so discouraged by reiterated refusals that I now very seldom solicit it. Only it is distressing to think how many a valuable specimen of disease which would have been a most desirable acquisition to our Museum, and which might materially assist the advancement of pathology and science, is, through false feeling, consigned to subterraneous decomposition.

Leaving, therefore, any further discussion of the pathological condition of the encephalon, I will merely allude to the visible and outward aspect of the chronic lunatic. Here the hair is generally dry and stubbed, sometimes neglected, long, ragged, and matted; the skin greasy, cadaverous, sallow, with (in many subjects) a papulated variegation resembling acne; sometimes it is dry and harsh, as though there were little or none of that secretion of insensible perspiration which we find in health and youth. There is, in short, a general want of tone in the skin, as well as in the whole constitution; the clear transparency is ill xchanged for a muddy aspect, and the whole appearance of the patient becomes so aged and altered, that, if ever Beauty reigned, scarce a vesige will be discoverable. And yet that fell isease, that fatal scourge of Europe, so linked with Beauty as to carry off more than half her ffspring (Phthisis,) is one of the most fatal diseases onsequent on insanity. Most lunatics become maciated; for, ravenous in most instances as is heir appetite, the process of nutrition lingers, at east in a large majority, and tubercular cachexia requently supervenes, or they become atrophied, without the usually prominent features of phthisis. This is, however, by no means universal; for corpulence may be observed here and there in most asylums, and if it were true (which *I* beg leave to deny) that "Fat paunches have lean pates," we might expect a much larger number of them amongst the insane—nay, Bedlem would be crammed with little else! Others die of exhaustion, induced by long-continued excitement, want of sleep, and that smouldering fire of adynamic fever which gradually consumes its fragile tenement.—This latter condition is often leagued with a chronic inflammatory state of the mucous membrane of the stomach and bowels—that subacute "gastro-enterite" on which some authors seem to imagine insanity to be mainly dependent; for, although constipation is a common event in insanity, yet an opposite condition of a dysenteric character will frequently be found to prevail, terminating now and then in colliquative diarrhœa and death. Without, however, concurring in so fanciful a theory as that insanity is a quasi-reflex action from the abdominal viscera, it has been shown by the statistics of upwards of one thousand fatal cases in France, that next to diseases of the brain and its membranes, more deaths were assigned to diseases of the abdominal viscera than to any other cause; and next to them, to diseases of the heart and lungs. The rate of mortality is greater in men than in women. All these numerical results, however, are uncertain, and of course vary with different contingent circumstances in different asylums.

The allusion to these different diseases to which lunatics are liable, and to which they mostly succumb, naturally awakens our attention to the treatment of them. But the medical treatment of these unfortunate beings is principally comprised in the treatment of the several diseases with which they may be visited; for we have no *antimaniacal* drugs—no Pharmacopœia *Lunatica*. Their diseases must be met much in the same way as the same diseases are met and treated where reason is undisturbed; and the hellebore with which Melampus was said to have cured the daughters of Proteus may be classed in efficiency for the *cure* of *mania* with the pills that were sold to prevent earthquakes! Courses of different medicines, such as mercury, emetics, nauseants, cathartics, narcotics, counter-irritants, tonics, &c., have all been tried, and each of them in turn may have been occasionally attended by the best effects, and by recoveries; and (to be brief) where certain symptoms have shown themselves calling for specific medicines, they have (as might be expected) fulfilled the object of their exhibition. Tonics are undoubtedly much required and much used (as may be imagined where debility is so common,) and perhaps *more* than any other class of medicines. Medicines of all kinds are equally necessary, according to circumstances, for the insane as well as for the sane. Nevertheless, there is no *Panacea* in either case! Many cases of insanity present no corporeal disease, though many others are so involved in, or based on it, that they are amenable to cure, in which cases "Sublatâ causâ, tollitur effectus." Hence, a ward in a public lunatic asylum may require as much medicine, and as much variety of treatment, as the patients in an hospital. In fact, they require double care; for the mind is diseased as well as the body, and must be equally ministered to. "No one," as Dr. Davey observes, "can be expected to succeed in the treatment of mental diseases, who fails to regard the brain as the organ of the mind." Again: "As regards the strictly medical treatment of the insane, those general principles of science, physiological and pathological, must invariably direct the practitioner, which he is in the habit of recognizing when engaged in the management of all other diseases, and of every kind of injury; and without great and unremitting attention to the various subjects of diet, ventilation, occupation, amusement, classification, &c., the physician will find all his labour in vain. To these all-important auxiliaries we are indebted more particularly for the successful result of the grand experiment made at Hanwell by Dr. John Conolly, viz., the entire abolition of all kinds of restraint in the management and cure of the lunatic, and the adoption of the humane plan of treatment,—a fact this, than which none other appertaining to medical history is more deserving the gratitude of the philanthropist and the esteem of all lovers of science; and one, moreover, not only well calculated, but destined to give to the name of Conolly a niche in the Temple of Fame by the side of those of Oberlin, Fry, Montague, and Clarkson." I cannot quote this merited compliment to Dr. Conolly, from the work of his former colleague at Hanwell, Dr. Davey, without expressing my unfeigned pleasure in knowing that Lord Ashley (now Earl of Shaftesbury,) whose name and exertions in the cause of Philanthropy stand out in such transcendantly bold relief in the present day, has most successfully set on foot and carried out the means of presenting Dr. Conolly with a substantial testimonial of the high appreciation in which he is held by his medical brethren and others for the science he has displayed, as well as the humanity which he has evinced, in the care and management of the insane.

It is remarkable how healthy the insane are. In a visit which I made last week to the Asylum at Hanwell, in company with Dr. Conolly, I was astonished to find scarcely an invalid amongst nearly one thousand patients,—certainly not half a dozen requiring medical treatment for bodily disease. I have observed the same immunity in the asylums in Essex. Much of this exemption of disease is attributable to the cleanliness, ventilation, regulated temperature, exercise in the open air, regularity of diet and living, and all those known rules and regulations which act as prophylactics generally.

In going round Bethlehem Hospital with Dr. Monro, only yesterday, there was scarcely a patient who had occasion for his professional advice for any bodily disease. There was what sailors call a "clean bill of health" amongst about four hundred of the *detenus*, and the ventilation, cleanliness, and regularity, were striking features of the institution.

The grand principle of modern and improved treatment is to avoid even the appearance of unnecessary restraint, as well as restraint itself; and to treat the insane with a confidence which will almost invariably excite their secret but proudest endeavours to preserve and retain. There is a secret power which holds the helm and guides it more effectually in its controlling and moral influence than the rude restraints applied to the bones and muscles of the human frame. There is no influence so powerful as the sphere of a *moral* influence. Put the padlock on the mind!—the *Lock* on the *Human Understanding!* One of the wildest and most violent patients at this time in the Asylum at High Beech is on his *Parole:* and although he is most anxious to be set at liberty, and continually appeals for it on every occasion of my visiting that asylum, and could at any hour walk into Epping Forest and escape in any direction, no inducement can tempt him to open the latch-gate which bounds the garden in which he daily walks. "*La Liberté nous rend fidèles.*" The reliance placed on his sense of honour has awakened a proper pride within him, and strongly illustrates the good effect of moral treatment. "There is a stage," says Dr. Gooch, "approaching convalescence, in which the bodily disease is loosening its hold over the mental faculties, and in which the latter are capable of being drawn out of the former by judicious appeals to the mind." It is when the icy fetters in which reason has been enchained begin to thaw beneath the genial ray of moral influence, that the prospect and the hope of recovery beam forth. Kindness of manner,—appeals to their sense and sensibility,—cheering promises of cure and liberation,—and dealing with their reason as though she had not been shaken from her seat, soon give the medical superintendent a valuable ascendancy over patients, and materially tend to disperse the thick cloud of delusion in which their intellect had hitherto been enveloped. It obtains their confidence and conciliates their esteem. They look upon their manager as a minister of "balm to their hurt minds," instead of a tyrant and a despot. This feeling was extensively demonstrated during my visit to the different wards with Dr. Conolly last Saturday. Their subservience and affection seemed equal; but

> "If e'er it chanc'd, as sometimes chance it must,
> That one among so many overleap'd
> The limits of control, his gentle eye
> Grew stern,"—

and they were instantly subdued. They are brought to consider themselves as visitors instead of prisoners, and to feel that when their minds, which had been in an unsettled state, shall have recovered their serenity, they will return to their business and their friends. In the interim, their attention is engaged, and their time pleasantly and advantageously passed in occupations connected with trade, or in diversified innocent amusements, both in doors and out, according to their fancy and inclination. It is a signal error to suppose that the insane are to be treated as if they were wholly irrational, for they are not so: very many of them are accessible to reason—at all events, and in all cases, they should be treated as if they were; and (if capable of being reasoned with) a well-directed reply will sometimes remove a false impression from a patient's mind. A lunatic, under the care of the late Dr. Allen, imagined himself to be Jesus Christ, and, in proof of it, showed him a scar he had in his side, which, he said, had been occasioned by his having been pierced with a spear. Dr. Allen, remonstrating with him, remarked that our Saviour was wounded on the opposite side. Ashamed apparently at the fallacy of his own reasoning, he hid himself under the bed-clothes, and never again reverted to the impression.—But, to return to the subject of reposing confidence in patients. Nothing but absolute necessity should justify absolute restraint. It only exasperates the furious, and renders the suicide more determined to effect his purpose. The faults of lunatics, like those of children, should be viewed with pity, for they are the ebullition of feeling without understanding. We must visit them lightly, blending firmness with kindness, and tempering our reproof with moderation and prudence, like the

> "Father!—whose authority in show,
> When most severe, and mustering all its force,
> Was but the graver countenance of love!
> Whose favour, like the clouds of spring, might lower,
> And utter now and then an awful voice,
> Yet had a blessing in its darkest frown,
> Threatening at once, and nourishing the plant!"

As soon as their convalescence renders them capable of estimating kindness, they will much more readily submit, and, even in the height of their most furious paroxysms, it is astonishing how much may often be done by liberality and gentleness. This may be extended or curtailed, according to their conduct; making them sensible of greater indulgence in proportion to their exercise of *Self-control*—a virtue and a duty which should be inculcated and impressed on them in every possible way. I will give one instance, and only one, to show the advantage of liberality combined with the precept of teaching this important duty.

Some years ago, a man, about 34 years of age, of almost Herculean size and figure, and very violent, was brought to the York Retreat. He had been often afflicted; and so constantly, iring the present attack, had he been kept iained, and so fearful were those who had the iarge of him of his violence and his strength iat his clothes were contrived to be taken off ad put on by means of strings, without removing is manacles. They were, however, taken off hen he entered the Retreat, and he was ushered ito the apartment where the superintendents rere sitting at supper. He was calm; his attenion appeared to be arrested by his new position. Ie was desired to join in the repast, during which ie behaved with tolerable propriety. After it ras concluded, the superintendent conducted him o his apartment, and told him the circumstances n which his treatment would depend,—that it ras his anxious wish to make every inmate as comfortable as possible, and that he sincerely hoped the patient's conduct would render it unnecessary to subject him to coercion. The maniac was sensible of the kindness of his treatment. He promised to restrain himself, and he so completely succeeded, that, during his stay, no coercive means were ever employed towards him. He was frequently very vociferous, and threatened his attendants, who, in their defence, were very desirous of restraining him by the jacket. The superintendent on these occasions went to his apartment, and though the first sight of him seemed rather to increase the irritation, yet, after sitting some time quietly beside him, the violent excitement subsided, and he would listen with attention to the persuasions and arguments of his friendly visitor. After such conversations, the patient was generally better for some days or a week, and in about four months he was discharged perfectly recovered!

Can it be doubted that, in this case, the disease had been greatly exasperated by the mode of management? or that the subsequent kind of treatment greatly tended to promote his recovery? Surely the case requires no comment.

In descanting on the general nature of insanity, I have hitherto confined myself to those forms which principally come under our notice.

> "*Proxima* deinde tenent mœsti loca, qui sibi mortem
> Insontes peperere manu—lucemque perosi
> Projecere animas!"

And as this is a class of patients whose melancholy exit implants a never-dying horror of the disease, vibrating remotely on surviving relatives and friends, I cannot quit my subject without a few passing remarks on so distressing, but, alas! so common an attendant. Amongst the Greeks, or still more amongst the Romans, Suicide was, under certain circumstances, not held in horror, but in high estimation, and was preferred to slavery or subjection, or the epithet of "nobile" would never have been added to the "lethum Catonis."

In France, it is comparatively little thought of, and though the English are often stigmatized with the propensity, it is far more rife with our Gallic neighbours than with us. The instances and the promoting causes are many and various, and occasionally the deed is done without any apparent incentive. The emotions consequent on a reverse of fortune may perhaps be considered as the principal; nor, when we admit that even the groundless apprehension of it operates as a fearful cause of, and presents a not uncommon feature in the malady before us, can we wonder at the result of the saddening reality. It springs alike from sudden impulse and from long premeditation. It occurs during delirium and mania, and follows on the depression and anxiety respecting futurity in cases of melancholia. Strange as it may seem, such persons who are goaded to madness by the delusive anticipation of pain and hell, rush into its very jaws by the perpetration of a crime which we are taught would subject them to the eternal punishment they dread! It reminds us of the desperation pourtrayed by Byron in a shipwreck:—

> "Then rose from sea to sky the wild farewell,
> Then shriek'd the timid, and stood still the brave,
> And some leap'd overboard with furious yell,
> As eager to *anticipate* their grave!"

Some seek it simply as a termination of *ennui*, of satiety of life and of the exhaustion of all its pleasures; some from remorse and self-reproach, from chagrin and disappointment, from blasted prospects and from blighted hopes,

> "glad to be hurled
> Anywhere—anywhere out of the world,"—

and owing to an impression that the act is almost *inseparable* from insanity, a verdict to that effect is mostly recorded. Could this sudden impetus have been foreseen, or this matured determination been discovered, there is no doubt that it might often have been prevented. A brisk cathartic, or a soothing anodyne, or a calm interposition of consolation or remonstrance, might have at once dispelled the visionary horror which prevailed over their clouded reason; but (as I observed in my preceding lecture) the impulse comes upon them in the stillness of night, when the victim first awakens to a magnified view of his unhappy condition, and when solitude favours the perpetration. The dread of poverty or fear of future damnation is incompatible with life, and drives them on to a madness which no influence of principle can restrain—no regard to consequences can withhold. Occasionally it has resulted from a sort of fascination. Such persons are unable to look down from an eminence or a precipice without an impulse to throw themselves from the top of it; they have been known to request that razors may be taken from their possession, so distressing was the desire to avail themselves of the opportunity or the instrument; and the Monument has now been railed in, to preclude the possibility of such an unaccountable propensity, for it can arise from no process of reasoning. It may be partly physical, affecting the circulation of the brain, which is a reasonable deduction from the accompanying vertigo; or it may arise from a peculiarly high susceptibility, with extreme weakness of the nervous system. Thus we find sudden precipitation occur in nervous fevers and in delirium tremens. Most frequently, some form of partial insanity is the principal or concurring cause.

In many instances of suicide the influence of hereditary predisposition is fully established. Dr. Gall asserted that he observed it in several successive generations, and M. Falret considers it to be more intimately dependent on hereditary predisposition than any other form of insanity, especially in cases of melancholia. The seasons are by many supposed to operate, or at least to exercise a partial influence; and the gloomy month of November has had this imputation cast upon it. The Census, however, leans to the warmer months, and the instances are found to predominate when the thermometer ranges above 70°. A warm and moist atmosphere is found to depress the energies of the nervous system, connected possibly with the condition of electricity in the air, and depressing the spirits; but these are very insignificant reasons for such an impulse, and we must tax those to which I have already alluded. That the deed is not by any means confined to persons of weak mind is extensively proved, when we reflect on those who have committed it; on the contrary, it may be easily traced in such cases to vascular plethora in an organ which has been overstrained in its intellectual occupation; engaged most deeply and responsibly in political and financial measures, in the management of public business or negotiations, by which the equilibrium of the circulation has been disturbed; inducing nervousness, headache, irritability, and other manifestations almost amounting to delirium. In cases such as this, an appropriate medical treatment, with rest both of body and mind, would most probably prevent such a contingency; and it is the duty of relations to watch the manifestations of those changes in the feelings and disposition which may often be observable, and which generally precede the act. Common sense will point out the means to be adopted; and the usual derivatives from the brain, such as local abstraction of blood, cooling saline purgatives, cold water, or evaporating lotions to the head, pediluvia, exercise in the open air, and in some cases (that is to say, where the brain may suffer from *want* of tone) the judicious exhibition of morphia or henbane should be resorted to, in addition to rest from those labours, or removal (where practicable) of those causes to which the phenomena may be referrible or referred.

Where innate and connate idiocy has, from its hopelessness, no further demand on those who are blessed with reason than their mere commiseration, or their Samaritan care, I have nothing to offer beyond the blended breathings of my sympathy with others. In this state, the moral, the intellectual, and the reflecting manifestations are in some nearly, in others entirely, deficient; in some, the instinctive emotions are apparently unfelt or undeveloped—they form the humiliating link of human with animal creation, evincing nothing but brutal propensities and uncontrolled desires—they are rachitic or scrofulous, epileptic or paralytic—and their melancholy state is consequent on unalterable physical disorganization.—Their faces and features are as destitute of expression as though their respiratory nerves were absent or destroyed; their mouths are gaping and perpetually drivelling, and they to all appearance are dead to all perception, emotion, or ideas. Lord Carlisle has very recently, however, in a public meeting convened for erecting a hospital for idiots, depicted their condition in language so replete with an eloquence which my humble ability would in vain attempt, that, inasmuch as it is too appropriate to require any apology for introducing it, and too illustrative of the subject to sanction its omission, I will proceed to quote it:—

"Yet, upon reflection, few descriptions of persons can be conceived more entitled to our generous sympathy and our active assistance. Without being invested with the more solemn and picturesque drapery of tragic dignity, they are exposed, perhaps, beyond all others, to the cold neglect, the coarse gibes, the brutal merriment of a callous and unfeeling world; they are the butt and scarecrow of the village green, often the drudge sent out from the domestic hearth. Take it that they meet with no ill treatment—that no aggravation of cruelty or scorn embitters their hard lot—nay, that family decencies and family affections gather round them, guide their path, and smooth their pillow: yet what a life of negatives is theirs at best! Nature spreads in vain her witchery of hues, her golden sunsets and her starry firmaments! To their untutored ears music has no melody; to their stagnant minds literature, and science, and art, and the sacred Muse, utter no varied voice! To their turgid souls devotion points no God! Too often, though dead to pleasure and to virtue, they exercise powers of mischief and annoyance, and though we must believe and hope they are without the responsibilities of crime, they yet incur all its degradation.

"The instantaneous cure, the entire change of the possessed mind, were only the work of Him whose voice the demons heard, and at once came out." "But," he continues, "there is reason to believe that much may be done—that positive advances may be made—that, by judiciously administering to the requirements both of the physical and moral organization (intimately connected and interlaced as they frequently are with each other), orderly habits, steady employment, rational tastes, kindly feelings, just sensibilities of the affections and the conscience, the sense of right and wrong, the fear and love of God, may be introduced and fostered, and developed into all their multiplied and goodly results; so that, in fact, in the best instances, the idiot may be converted into a decent and creditable member of society; in the *worst*, his existence may be surrounded with an atmosphere of comfort and of tenderness."

But enough! I hope that I have advanced sufficient to give a general outline of my views of

nity, and an abstract of the proper manage-
nt of its subjects; and more than this is
cely to be expected in the narrow limits of
e assigned to a Lumleian lecture. I have
lt rather on those divisions of it which are more
eptible of cure, than on the lamentable condi-
s in which this happy termination is either far
, or hitherto altogether beyond the reach of
dicine or management. Would that the third
ision (by which I mean dementia, fatuity, and
cy) were equally under our control! Where,
ever, it has supervened on that disorganization
ich is incompatible with reason and intellectual
ction—be it from age, or be it from disease—
ear that little must be expected, and that little
n be done. Let us hope, however, that these
eering anticipations may ultimately be realised;
t the general diffusion of sentiments so strong,
thed as they are in the drapery of so much eloquence and so much beauty, may be the means of extending the blessing of recovery to those who may at present be considered beyond its pale. Would that I had the capability of enhancing such a blessing either in person or in purse. I can add nothing to language so powerful and so refined. I have not the matter which can contribute more to what little is already known in cases of such a character; neither have I the talent or ability which can justify my trespassing at greater length on your time and your attention. I thank you most cordially for the patience which you have manifested in listening to what I have offered during the lectures which I have had the honour of delivering: and as this is (as I premised) my maiden appearance in the character of a lecturer, I must rely on your kindness to excuse the myriad imperfections in which I grieve to acknowledge they abound.

ON THE

MEDICAL JURISPRUDENCE OF INSANITY.

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On the relation of insanity to certain allied conditions—Resemblance of insanity to dreaming, febrile delirium, and delirium tremens—these occasional causes of the disease—Excited passion and insanity—Psychological character of insanity—Insanity contrasted with allusion, hallucination, delusion, disease with mental symptoms, intellectual dulness, eccentricity, abused fancy, and moral depravity—Pathology of insanity.

MEDICAL and legal doctrines on the subject of
liseased mind are even in this present day far
'rom harmonious, and therefore in teaching you
vhat is termed the medical jurisprudence of in-
sanity, I shall consider it right to occupy not a
ittle of the time with a detail of the features of
nental derangement, so as to afford you a just
iotion of what the lunatic condition actually is,
nd put you in a position to form independent
udgments on the points which are referred to
nedical opinion. In so doing, while I shall seek
o avoid all pathological and therapeutic matters
s unsuited to the objects of such a course, it
nay happen, in regard to most of you, that I shall
e effecting something in the way of filling up
hat is ordinarily an unfortunate hiatus in the
ducation of the profession.

Insanity is one of several states of imperfect action to which the organism of the human brain is liable. Among these I may enumerate, for example, the conditions of dreaming, and the several varieties of delirium, all of which are forms of mental unsoundness, having certain common resemblances, and bearing undeniable relations to the state of mind which exists in the insane. They are all conditions in which certain faculties of the mind are in abeyance, and in which, as a necessary consequence, psychical manifestations are perverted or imperfect.

Dr. Holland is of opinion that more cases of insanity bear a similarity to the mental phasis which constitutes dreaming, than to any other cerebral condition whatever; and certainly there are no observations in our power to make, that seem to convey so distinct an impression of the sensorial state of the insane, as those which an individual may attempt, by turning his attention upon what takes place in his own mind when merging into the sleeping or the waking state. In the transition betwixt these two conditions the mental operations have many features in common with delirium and intellectual derangement. As the senses are gradually released from sleep or overcome by it, the succession of thoughts is slowly emancipated from control; the ideas are combined in a manner which is altogether involuntary and dissimilar to the ordinary workings of the imagination. Conceptions take the place of sensations, as in the insane, and sensations become misinterpreted, as happens in cases in which the judgment is diseased. If the train of thought were expressed, it would be in speech as rambling and incoherent as the raving of the demented. The cerebral condition in dreaming is so far allied to that of insanity, that occasionally a state of painful dreaming gives the first warning of approaching mental disease, and the patient seems to suffer from the disorder in "the howling wilderness of sleep," for some time before it has gained sufficient energy to influence the powers of volition and judgment when he is awake. I have occasionally heard an attack of insanity attributed to a frightful dream, the delusion that afterwards haunted the mind traced to an impression produced in this way, and in some cases have known the state of lunacy to spring apparently directly from that of sleep.

The following seems an example of a cerebral condition induced by sleep merging into that of insanity, the patient going to bed sane, and awaking lunatic:—A female servant in the country, a robust young woman, about twenty-seven years of age, in whom no mental peculiarities had ever been observed, came down stairs from her sleeping apartment one morning complaining of headache, and inability to go about her ordinary occupation. She exhibited much excitement of manner, and confusion in her talk, and repeatedly called out for her master's son who she insisted had been with her during the night, and had promised her marriage, or, as she phrased it, had married her before God. Circumstances were every way at variance with the possibility of her story, and her whole appearance and conversation were manifestly those of a person labouring under an insane delusion. Attempts were made to reason her out of the notion, but in vain. Continuing to become worse, she was sent home to her friends, and put under medical treatment, with so much advantage, that in a few weeks she was allowed to return to service. Her old place, however, very speedily caused the delusion to be renewed in all its force, and she was again returned to her friends, with whom she continued for some months, constantly manifesting the same monomania. She then came under my charge; but it was some months before she recovered, and became aware of the extent to which she had been deceived by her own imagination. A year or two afterwards, when she was in a different part of the country, I am given to understand that the same fancy returned very suddenly when she was in a stooping position cleaning a grate.

The state of dreaming resembles that of delirium or insanity, in a similar disturbance of the laws by which ideas succeed each other in the mind, and a corresponding loss of voluntary control over the trains of thought. Hence the intellectual manifestations of memory and comparison are impaired in both states: conceptions become sensations, constituting dreams to the sleeper, and delusions to the lunatic. If the dreamer added the fancies of his sleep to his waking experience and belief, as an insane person not unfrequently does, and as appears to have happened in the case just narrated, he would in no way differ from the latter.

Betwixt febrile and maniacal *delirium* the distinction seems to be entirely pathological: psychologically they are the same. In the former, the vital functions of the great nervous centre are more deeply implicated, and it is from this character that a diagnosis is best deduced. Either state may pass into the other, the delirium of fever becoming mania, and the delirium of mania assuming an appearance which corresponds to the nervous symptoms in the worst description of typhus. Such changes are effected not by any alteration of the mental, but of the physical symptoms of the disorder. If a fever patient continues to labour under delirium after all other febrile symptoms have abated, he becomes a lunatic patient, and will have to pass from the fever hospital to the asylum. This forms the occasional history of a case of insanity, and most commonly in young persons. The variety of insanity assumed is generally that of dementia, and the recovery, though tedious, is not improbable.

A carpenter's apprentice, aged seventeen, was attacked with the usual indications of fever of a low type. The case throughout was marked by the predominance of symptoms referrible to the nervous system; the skin was very hot; the pulse feeble and quick; the tongue dry and brown; there was much subsultus, and delirium was very persistent. In the course of three weeks all the febrile symptoms had abated; the skin was cool; the pulse at a natural standard, and the appetite restored; but the eyes had a very wild expression; he could not be prevailed upon to answer questions; he was violent and unmanageable, without indicating any reason, or making any complaint. Though his strength was daily improving, and his bodily health apparently restored, the mental symptoms became more and more urgent; and he was considered to be insane, and put under superintendence accordingly. The exact state of his mind could not be ascertained, for he scarcely spoke for several months, but his actions were very extraordinary, and apparently influenced by spectral objects and aural impressions. His recovery occupied a period of fourteen months.

You will find several interesting examples of delusion and mental disease combined with, or resulting from, fever, in Roupell's Treatise on Typhus.

The change from a state of maniacal excitement to one resembling the delirium of typhus, is familiar enough to the superintendents of lunatic hospitals, as of occasional occurrence towards the fatal close of cases of violent and acute mania. In such instances the patient seems to die entirely the vital exhaustion which is produced by exeme excitement of the nervous system, and an dividual, seeing the case for the first time at is stage, might from the symptoms suppose it to one of malignant fever.

Betwixt the mental condition of *delirium trens* and insanity, there seems to be no other fference than what is made by duration. If e patient, labouring under symptoms of a cerin sort, die or recover within a reasonable time, y two or three weeks, he is said to have had lirium tremens, but if the delirium persist bend some such period, the case becomes one of ental alienation, and is dealt with accordingly. ach is the history of very many cases of insanity hich have had their origin in intemperance.

Besides the above conditions, there are several her states and moods of the mind to which innity has kindred features; in which there is in egree a similar loss of power over the thoughts, ith inefficiency of judgment, and even illusions f sense. Anger, fear, grief, enthusiasm, and exitement of the imagination, may put a fool's cap r a time on the wisest head, producing states hat differ from unsoundness only in the shortness f their duration, and the possibility of their eing rectified by voluntary effort.

Insanity bears resemblances to various condiions, and presents itself in a variety of forms. Sometimes it is congenital, and consists of undeeloped faculties; the powers of the mind have ever been completed, or they have never acquired the energy necessary to manifest themelves in natural activity. Sometimes it mainly ssumes the form of ungoverned passion and loss of moral control. Another time it resembles delirium, and consists in intellectual disorder and onfusion; and lastly, it may arise from destruction or obliteration of one or more of the faculties of the intellect. In all instances the characteristic is defect of mental power, either congenital or the consequence of debilitating causes. The power which is deficient is the controlling power of the will, as exercised over the current of thought, the relation through which every mental operation is produced. All imperfect mental actions result from this cause, but none of these are denominated insanity unless that imperfect action which has either congenital defect or disease as its cause, and for its sign a relative or an universal incapacity of judging. Observe, I do not say an incapacity of judging correctly, but an incapacity of judging at all: the former would merely indicate imperfect thinking or error, but the latter indicates disease. The loss of the power of judging is exhibited in matters of sense, in matters of conduct, or, it may be, in every matter with which judgment should be concerned. Suppose it to be a diseased perception that cannot be canvassed by the judgment, then the phasis of the insanity is intellectual, and its leading symptom delusion; but should it be an emotion that is diseased, then the moral aspect of the individual is unsound, and the prominent feature a loss of control over actions; and instead of a calm judgment guiding the conduct, you may have an impulse as resistless as a necessity, unassailable by reasoning, and removable only indirectly by treatment.

To constitute insanity, then, it is necessary that a diseased condition of the mind interfere with the production of that result of the comparison of one thought with another which we term judgment. We cannot, in the estimation of Dr. Conolly, approach any nearer to a definition of the state, than by saying, that it is an impairment of one or more of the faculties of the mind, including or inducing a defect in the comparing faculty. Until the morbid action is thus powerful, or thus much extended, it is not insanity. Diseased perception may produce illusion or hallucination, but so long as the power of comparing it with other perceptions is intact and entire, the false impression is corrected, and has no influence, but a voluntary one, upon the conduct. Even should the illusion continue, its inconsistency is more apparent to the judgment, than its existence is clear to the sense. In such a condition an individual possesses a phantasma, but is not possessed by it, it is under the control of his higher faculties: he can compass it about, and deal with it as he pleases. An insane person finds no curative incompatibility with other perceptions in his delusion, because he has no power of instituting the comparison. It controls his will, but his will has no reaction upon it; and he remains possessed by it, and insane, until such time as his volition is enabled so to handle his morbid idea, as to make it subservient to comparison and judgment.

Illusion, hallucination, and delusion, though usual phenomena in insanity, are not sufficient to constitute the disease. These terms are of common occurrence in medical writings on the subject, and are not always used very categorically. An *illusion* is a mistake of the senses, a false perception; a *hallucination* is a baseless creation of the fancy; a *delusion* is an illusion or hallucination misleading the judgment, and governing the conduct. Thus, if a person returning home at night mistook the trunk of a tree for an apparition, that would be an illusion; if he saw a ghost where there was neither tree nor anything else, that would be a hallucination; if he believed in the reality of this conception, he would be under a delusion; and if he continued to act in accordance with such a belief, he would be as one insane, yet not truly mad so long as his obedience to it remained a matter of his own free will.

A careful distinction must be made betwixt *diseases having mental symptoms*, and diseases of the mind; betwixt madness, and such affections as hypochondriasis and hysteria. Hypochondriasis consists of illusions and hallucinations regarding one's bodily sensations, and is therefore not insanity, until these become deep-seated and permanent delusions, compelling to irrational conduct. Hysteria, hypochondriasis, and various other affections, which often precede, cause, and accompany insanity, are not diseases of the mind, but more strictly speaking diseases having mental symptoms, until by generating delusions they pass into insanity, and afterwards continue as complications of the disorder which they have created. Thus we have hysterical mania, which is not hysteria merely, but hysteria and mania combined; so also there is hypochondriacal monomania, which is not hypochondriasis alone, but hypochondriasis and insanity together.

Simple defect of intellectual power, *intellectual dulness*, must not be confounded with the imbecility which constitutes a variety of insanity, which is not merely a feeble intensity of mind, but a positive deficiency of faculties. Wherever there is a feeble exercise of attention, or defective memory, there will be imperfect comparison, and resulting inaccuracy of judgment; but not from these, or similar causes, any necessary tendency to be governed by delusions. In all cases of imbecility included in the term unsoundness of mind, there are both emotional and intellectual deficiency, a loss of control over conduct, and from the antecedence of judgment being in some part defective or diseased, a liability to confound the actual with the unreal. Delusion is not a prominent characteristic, however, for in such cases feebleness is the type of all the mental manifestations, whether healthy or disordered.

Eccentricity has also to be distinguished from insanity. All the insane are eccentric in their ideas, their language, or their conduct, but the merely eccentric have but a voluntary resemblance to the insane. Eccentricities differ from lunacies in not arising from a loss, but from an undue exercise, of the faculty of judgment; very often from a vanity or self-respect in the individual, that leads him to prefer his own judgment to all other judgment, experience, and authority. They offend against custom and experience more than against reason. The eccentric, if he cannot give a satisfactory reason for his outré conduct, can at least assign an intelligible motive: the lunatic has no explanation to afford that does not involve an absurdity. A certain individual behaves in all respects like other men, unless that he constantly walks about without a hat, or any other artificial covering for his head. When questioned upon this point of disagreement with the custom of his neighbours, he says, that nature did not intend the head to have any other protection than what she herself had afforded, that a bare head is more becoming, that he feels himself in every way more comfortable as he is, and that he is certain that he will live longer in consequence of acting in this rational way. In two instances in which lunatics adopted the same habit, the causes assigned by them were of a very different description. One did not have his head covered, because it had grown so large that he could not get a cap to fit it; and the other was so annoyed by certain mischievous tormentors of an invisible kind drumming upon the crown of his hat, that in general he preferred to carry it in his hand. The eccentric man had a rule of conduct, the result of his own narrow judgment; the two lunatics were impelled by fancies upon which their judgment was entirely inoperative. Lord Monboddo, insisting that the human family were originally adorned with tails, showed himself an eccentric theorist; had he asserted that they actually retained them, he would have had an insane delusion, instead of a philosophic crotchet. He would have had a false perception on which his judgment was inoperative, whereas, he was guided *by his judgment* to a strange conclusion.

Eccentricities no more constitute insanity, than idiosyncracies constitute disease; and as these are competent with a sound state of the body, so are those with even a vigorous judgment. For example: there was an old man well known in London in the last century, who was of an ungainly appearance, and subject to occasional attacks of a hereditary melancholy. So inconsistent was he in his habits, that sometimes he practised great abstemiousness, and at other times devoured huge meals, with brutish slovenliness and voracity; sometimes he would persist in drinking nothing stronger than water, but occasionally he drank wine by tumblerfuls. His income was far from large, and not of a certain amount, yet he kept a set of old men and women about his house, whose bickerings and disagreements now and then drove him out of doors. He was in general very loquacious, but had been known to sit in company and drink a dozen cups of tea, without speaking a syllable. When not engaged discoursing, it was his custom to keep muttering to himself. In walking he performed strange gesticulations with his limbs, and would not go in at a door, unless he could effect his entry in a certain preconceived number of steps, and so as to introduce himself on a particular foot, turning back, and recommencing, until he succeeded as he desired. There was a row of posts near his house which he would not pass without touching singly, and if he found that he had omitted one in the series, he retraced his steps to remedy the neglect. He hoarded up orange-skins for some mysterious purpose which he would never divulge. He suffered remorse of conscience for once having taken milk with his coffee on Good Friday. He believed in ghosts, and went ghost-hunting in Cocklane; and he maintained that he had heard his mother calling upon him by name from the other world. Yet Dr. Johnson was so far from insane, that his judgment commanded respect and admiration everywhere, and by the common consent of eminent contemporaries he was the most vigorous thinker and the greatest sage of his time.

There are, however, instances of eccentric conduct resulting from *abuse of the imagination*, which verge closely upon madness, and occasionally pass into it. The distinction is, that the individual's voluntary power over his thoughts is capable of bringing the comparing faculty into efficient operation, when he chooses duly to exert his will. Thomas Hood speaks of one who, in consequence of exciting his fancy by German tales of diablerie, used to fly up-stairs at his utmost speed from the street-door to the attics, beause a sort of wager with the devil came into his head, that he would gain the top before countng a certain number, or forfeit eternal happiness. Every one possibly experiences moods which differ in no respect from insanity, than that they are neither permanent nor independent of the will. These may be common in imaginative minds, but instead of being indulged, they should be guarded against and restrained, for, though they exist at first by sufferance of the will, they sometimes gain a strength that defies control, and triumphs over the reason. Hoffmann, a master in fantastic fiction, suffered so much from intemperate abuse of the imaginative faculty, that solitude became terrible to him. He was never quit of a mysterious sense of danger; things the most cheerful became incongruously associated with thoughts the most dreadful, while monsters and spectres, which he himself had created, tyranized over his reason. To appease his terrors, he had frequently to summon his wife from bed, to sit by him as he studied at night. He was constantly on the verge of insanity, and died of spinal disease, his mind being tortured by his fancy to the last hour of his existence.

Often it is not an easy matter to draw a distinction betwixt insanity and *moral depravity*. In every case of mental alienation there is disorder of moral as well as of intellectual manifestations. The moral disturbance is usually the earliest developed feature of the malady, frequently it is the most prominent, and occasionally no other is distinguished; so that the bad have been liable to pass as mad, and the mad for bad, according to the philosophy and fashion of the time. There is no problem in law, medicine, and ethics, of greater social importance, or of more difficult solution, than the discrimination of insanity and vice. A wicked deed may be the result of an undeveloped moral sense, as for example in a child or an idiot; it may be the consequence of such extremity of passion as impels to instinctive, instead of deliberative action; and it may be the indication of a conscience enfeebled by voluntary neglect, and the habitual gratification of evil desires. Any of these states may be simulated by disease; but it is with the two last only that the jurist will have difficulty; for, in all cases of insanity in which the moral sense is non-existent, the powers of the understanding also are either undeveloped or destroyed. No hideousness of depravity can amount to proof of insanity, unsupported by evidence of a judgment incapacitated or a will fettered by disease. In those cases of mental disorder in which the emotions are perverted, and where there is no clear proof of deranged intellect, cases which do from time to time occur, the presumption of insanity, in regard to a criminal action, has to be upheld by evidence of suspension of the will. The actions of an individual in such a state ought to be impulsive, involuntary, and irreconcileable with the idea of a healthy state of the emotional faculties.

I have endeavoured to draw as plainly as possible certain distinctions betwixt insanity and some conditions which, as they are allied to it, are sometimes confounded in it. Let me now request your attention, in conclusion, to a few remarks on its essential nature as a disease. I have already spoken of its psychological character. As a pathological state it is easier to tell what it is not, than what it is. Some will have it to be a disease of the body, in which metaphysics are useless; others, a disease of the mind, to which physic is as inappropriate. Still we find it curable sometimes by moral treatment, sometimes by medical; but far more usually by a judicious combination of the two, and almost never remedied by unassisted nature: a truly impressible condition, and far from an opprobrium medicorum. It is not a purely corporeal disease, like one of the neuroses; it is not a nervous affection merely, but a neurosis and something more; neither is it a purely mental affection, like error or vice. Both mind and body are at fault. According to the views of Feuchtersleben, it is their relation that is diseased; of the body to the mind, so that perception is morbid; of the mind to the body, so that volition is disordered. From which, then, does that disturbed relation proceed, which, when established, becomes reciprocal? If from the organism, it is a physical disease; if from the mind, a mental one, although in a sense not to be defined. Were I to dogmatize to you on this abstruse matter, I would say that there are two kinds of insanity, one a mental disease, the other a bodily one, both acquiring the psychosomatic character. There is a form of insanity produced by mental causes, in which the physical symptoms appear secondarily, which is sometimes curable by moral means, and which, if uncured, either leaves no traces behind, or a morbid anatomy which is its result, and in no case its cause. The other form proceeds from physical derangement, occasions sympathetic mental aberration disappearing with its cause and having a traceable pathology.

Of the allied conditions of which I have been speaking, hallucination, stupidity, eccentricity, excited fancy, and moral obliquity, would range with the former; and illusion, hypochondriasis, and hysteria, with the latter. But the essential state—the diseased reciprocal relation disturbing personality—would be fully represented only by those conditions which I have now omitted to enumerate—namely, delirium and dreaming. The others have a resemblance to insanity in their origin, but do not partake of its essential character.

I repeat, that insanity is not, strictly speaking, to be termed either a bodily or a mental disease; that it is a disturbed reciprocal relation of mind and body; but that in its origin it is sometimes a mental, sometimes a bodily disorder; and that in the allied states alluded to, sympathetic delirium—which, if we recognize the two kinds of insanity spoken of—is a representative of the second, and the delirium of dreaming, which is a representative of the first, are the only conditions that have the same essential nature with what is termed unsoundness of mind.

Medico-legal authority in insanity—Civil consequences of the state—Legal sub-divisions; idiocy, lunacy, unsoundness of mind.—Legal doctrines.—Medical Classification; (a) *general insanity;* 1 *amentia,* 2 *mania,* 3 *dementia;* (b) *partial insanity;* 1 *monomania,* 2 *moral insanity; relation of the foregoing states to each other; doubtful and variable cases—General description of the insane state: the relation of country, age, sex, station, temperament, and social condition, to disease of the mind;* (a) *moral condition of lunatics—Premonitory moral disorder—The emotional features of insanity, selfishness, &c.*

THE members of the medical profession have very important duties laid upon them in the detection and discrimination of insanity. They are certainly not more peculiarly qualified than any other equally intelligent class in the community to determine upon the evidence of mental inefficiency, or to come to sound conclusions on the important question of civil competency, and the more difficult subject of criminal responsibility; and, on this ground, their authority in cases of mental unsoundness has sometimes been querulously objected to, and their judgment undervalued. Leaving it to jurymen and judges to solve these questions authoritatively and judicially, there is no class better entitled, by education and general acquirements, to undertake the investigation of mental conditions, and none so well qualified to pronounce upon the point of mental health. It would, however, be to the interest of the public, and the credit of the order, that these particular medico-legal functions were discharged by the specially experienced section of the profession. The medical examiner alone has aids in his knowledge to guide him to a correct opinion as to the healthy or unhealthy state of mental organs, and the soundness or unsoundness of the functions of the brain. He has had practical opportunities of learning how to distinguish maniacal from delirious, lethargic, hysterical, and other allied conditions, and can discover evidence by detecting symptoms which others would overlook, and appreciating indications which the non-professional would misconstrue. The physician is a jurist in cases of insanity, not on psychological, but pathological merits. He knows the phenomena of mental aberrations, and, with no greater metaphysical acumen than his neighbours, is better able to distinguish the results of disease. Insanity is the phenomenon of ignorance or vice as the effect of disease.

Insanity, when substantiated, annuls agreements entered into in that condition, deeds executed, and testimony given; and it is the duty of the medical jurist to examine persons suspected to be labouring under diseased mind, and to give evidence fitted to guide juries to a right decision on the question of the competency or responsibility of such individuals. He has to investigate the foundation for the pleading of insanity, when urged in criminal cases as a reason against trial, judgment, or punishment; and to testify as to the mental condition of parties whose wills, contracts, marriages, declarations, or confessions, are attempted to be set aside upon the same plea. It is upon the written certificates of medical practitioners that a legal warrant is obtained for the confinement of a person as lunatic in any hospital or asylum, by which his personal liberty is infringed, and, it may be, his civil privileges curtailed, and his responsibility to the law for a time suspended. After an individual has been so far recognized as insane, it is necessary, before curators or others can intromit with, or administer his estate, that his incapacity be shown to the satisfaction of a jury, as in a court of commission in lunacy, which is the mode in England, or in the Sheriff's court, which is the plan followed in Scotland. Medical testimony is a necessary preliminary to such proceedings, and in their course the professional evidence is the most important.

Before we turn our attention to the forms and varieties of mental derangement recognized by medical writers who have studied the subject, let me first introduce you to the divisions and doctrines which the authority of the law has established.

Lawyers speak of three forms of insanity—idiocy, lunacy, and unsoundness of mind—and attach to these terms the following meanings: *idiocy* is congenital insanity, and therefore always defect of mind; but the deficiency of intellect must amount to an extreme of imbecility; *lunacy* is an acquired insanity, not of necessity permanent but capable of lucid intermission, or complete cure; and *unsoundness of mind* implies such a degree of mental disease, or decay, as renders the subject of it unfit for the management of his affairs.

All who are idiotic, lunatic, or unsound of mind, are looked upon as incompetent in civil cases; but only the first of these classes are of necessity irresponsible for criminal actions. Lunatics, and others of diseased mind, are accountable for any crime not committed during such a paroxysm of their disorder as may be held to have subverted the power of distinguishing right from wrong.

It will appear to you, then, that we have, in law, three classes of the insane, and, as it were, two degrees of insanity—the lower degree vitiating civil acts; the higher absolving also from criminal liability. Now, the species of evidence admissible for the establishment of the former, or lower degree, will not suffice to substantiate the latter. In respect to a civil contract, proof of incompetency may be derived from any circumstances indicative of diseased mind, even from the character of the act itself; but in regard to a criminal offence, the evidence of irresponsibility cannot be derived from the action, but must be deduced from such other circumstances as manifest the individual's incapacity to distinguish lawful from unlawful.

A civil act, flowing from an insane delusion, will, on that very score, be invalidated, and deprived of efficacy; indeed the rule is, that the civil deeds of a lunatic are void, even when they are not the results of insanity, though to this principle there are recorded exceptions. But a unatic who has compassed a criminal action is not of necessity absolved from legal consequences, even should the offence have been a natural result of his insane delusion.

Such is a brief statement of legal doctrines; and they have given rise to much and intemperate criticism. They are the results of an imperfect knowledge of the disease, with a clear estimate of its practical consequences. The divisions are not nosological, but judicial; you have not mania, melancholia, and so forth, but only incapacity to learn the law—incapacity for civil freedom—incapacity to obey the law—and incapacity for personal freedom—the exponents of a diseased state conventionally divided into idiocy and lunacy, and, in order that the classification may be perfectly comprehensive, supplemented by a vague condition called unsoundness of mind. A greater anxiety seems manifested to guard the lunatics' pocket, and the interest of his heirs, than to protect his life. He shall not by his harmless folly place either himself or his friends at disadvantage, but a criminal action shall not interfere with his privilege of being condemned. Harmless acts may be evidence of his lunacy, but illegal ones shall not; for it is assumed that he may be blind to what is merely foolish, and yet at the same time able to distinguish and avoid what is sinful. The law has a ready eye for insanity in a civil deed, but will not even look for it in one that is criminal. Freedom of will is held to be quite compatible with diseased judgment; and the mind which is enslaved by a delusion is still presumed to have the power of disobeying it. The plea of civil incompetency can be based upon any action of the diseased mind; but that of criminal incompetency must be laid on a more restricted foundation. Disqualifications for the rational management of affairs where it exists, is in general readily seen in the confusion which it has created, and is always possible of legal proof; but non-responsibility for crime is frequently first suspected, in consequence of the act for which the individual is called in question, and is held to require a species of evidence that cannot be put to a satisfactory test. Under legal expositions of such doctrines, lunatics may be carried from the asylum to the jail, and, almost idiots, swing on the gallows. Not only may such things be, but such things have been, and within recent memory. No degree of imbecility, unless a supreme degree, will annul guilt and avert punishment; for if there be any glimmering of reason, the imbecile is not an idiot in the legal acceptation, but capable of distinguishing good from evil, and thereby accountable to the law. The best evidence of insanity may be rejected in conformity with the above dicta, for doubtless in some instances, the fullest proof of an insane mind at the time will lie in that inadmissible particular, the character of the crime itself. To adduce such testimony would be deemed equivalent to taking for granted that which it is an object of the trial to determine; but, if it is also an aim of the inquiry to come to a just decision, there are cases in which the aspect of the criminal circumstance must be permitted to have influence.

In medical opinion, insanity results from the action of certain pathogenical agents, so limiting the faculties of the mind as to render, in some matters, the influence of judgment unseen, and right conduct impracticable by independent personal effort. Incompetency in the affairs of life is one manifestation of the condition, loss of voluntary control another; but perhaps neither feature is a complete portrait of any one case. It is the accident of external circumstance that educes either characteristic the more prominently, and leads to the mistake of accepting a merely comparative soundness of the other for perfect integrity. For full government of the conduct, all the faculties of the mind are required; and when it is clear that the judgment has suffered to the extent of producing civil incompetency, we must admit that one important guide of the will is enfeebled, and a presumption of irresponsibility already obtained. We, who have daily opportunities for knowing that no vital organ of the animal body suffers alone, may be prepared to give more than due weight to seeming indications of a corresponding analogy in the psychical economy; but when we consider how judgment hangs on memory, memory on attention, and attention on power of will, we cannot but in the very fact of received delusion recognize a defect of the faculty which gives personality to our actions.

The members of the legal profession whom official position has afforded opportunities of becoming acquainted with the nature of insanity, will in general be found to have formed views on the subject more in accordance with medical opinion than those which are ordinarily expressed by their brethren. Were those lawyers to whose duty it may fall to address juries in such cases, to devote a share of their attention to the study of mental disease, either by reading, attending lectures, or, best of all, by visiting the insane themselves, there would be less opportunity to remark a difference between medical and legal opinions.

The most generally recognized division of insanity is into general and partial.

General insanity is unsoundness of the whole mind,—the powers of intellect, emotion, and will, being all involved in a greater or less degree; so that the individual may neither think, feel, nor act, as an intelligent and responsible being in regard to any matters. Such a state may be the result of three different conditions of the mind, and its phenomena will vary with its origin. It may be the natural consequence of the *non-development* of mental faculties to the healthy human standard, in which case thought will be feeble, the expression of emotion imperfect, and conduct foolish. It may result, in a mind of natural capacity, from *disorder* of the mental faculties, occasioned by a loss of voluntary control over the succession of thoughts; and then, thinking will be delirium; language, incoherence; and action, extravagance. Lastly, general insanity may be the accidental consequence of *obliteration* of certain faculties by disease, in which case the phenomena will be a mixture of those of non-development and disorder. There are, accordingly, three distinct forms of general insanity; and to these the terms amentia, mania, and dementia, have been applied.

Amentia is congenital general defect of mind, intellectual, emotional, and impulsive. Under this term we comprehend idiocy, and all the degrees of natural imbecility that may be included in the general term insanity. In its highest degree the mental feebleness is found to be associated with imperfect physical development; and the whole phenomena are, by Feuchtersleben, referred to a depressed cerebral, spinal, and even ganglionic vitality.

Mania is that form of insanity characterized by general perversion of the ordinary mental powers of the individual, so that no aspect of his mind is natural. There is loss of voluntary control over thought, emotion, and action, manifested in delirium, extravagance, and motor excitement. Its phenomena have been referred to cerebrospinal exaltation. Mania has been divided into acute, chronic, remittent, intermittent, epileptic, hysterical, and puerperal, according to certain features in its history. The phrase "moral mania," which you will sometimes meet with, does not imply any variety of mania, being employed to indicate, not a species of general, but of partial, insanity.

Dementia is general deficiency of mental power, intellectual, emotional, and impulsive; not congenital, but the consequence of disease or natural decay. It includes all forms of acquired imbecility, and has the features, but not the history, of amentia. Its symptoms are those of impaired voluntary control over thought, feeling, and action, manifested in incoherence of language, irrational excitement, and a tendency to spasmodic motions and paralysis—phenomena which may be referred to cerebrospinal injury. It occurs as a primary form of insanity in persons of uncultivated or weak mind, but much more usually is a secondary disease, and the result of some other form of the disorder. On the table written up before you, you will find the terms acute, primary, chronic, secondary, and senile, employed to designate its varieties.

Partial insanity is a term which would evidently imply unsoundness of certain of the mental faculties, with a natural condition of the rest; and indeed you will find it so defined by most writers; but it is much nearer the truth to say that it is a more limited exhibition of unsoundness, or a less degree of the same state as general insanity. The mind is so far diseased, that there are one or more intellectual or emotional ideas with which it cannot deal as the minds of other men would do. The judgment is constantly at fault on some point, and the will unfree; but though the points are limited in number, the confusion which they occasion in the mind itself is general, not partial. Partial differs from general insanity, rather in the number of manifested aberrations, than in the number of faculties involved. It also, I believe, may be the result of congenital defect, and accidental obliteration of faculties, as well as a mere manifestation of derangement of powers naturally complete. It may have the character of imbecility or defect, as well as that of confusion or delirium. Two kinds of partial insanity are recognized—viz., monomania and moral insanity, which I shall now briefly define.

Monomania is that form of insanity in which the judgment is evidently incapacitated on certain subjects, yet seems to be sufficiently capable of acting in regard to others. A fixed delusion fetters the attention, overruling the influence of all opposed perceptions, and directing the conduct. The phenomena of the state are referable to a persistent morbid cerebral action. Monomania has been subdivided into a multitude of forms, to which, as you see from the table, various pedantic designations have been applied, intended to be descriptive of the nature of the most prominent diseased manifestations. The best practical division would be, into monomania with depression, in which the delusions are productive of despondency; monomania with exaltation, in which they are such as to elevate the self-esteem of the individual; monomania with alternation, in which the morbid idea sometimes occasions excitement, sometimes depression; and monomania with indifference, in which the phase can neither be said to be of a high nor of a low cast, being of a kind that negatively affects self-estimation.

Moral insanity is that form of the disease which is manifested, not by incapacity of judgment and intellectual aberrations, but by morbid emotions, leading to loss of control and blind or irresistible obedience to disordered impulses. In all cases, though the intellectual power is below the average standard, it is the actions of the individual that are irrational, and not the words; there may be feebleness in thinking, but delirium only in the conduct. The phenomena might be accounted for in the supposition of a depressed cerebral vitality in combination with a state of cerebrospinal irritation. The varieties of the disorder are many; and it is probable that some of them are congenital defects. I would distinguish two kinds of moral insanity—viz., diseased passion, and insane impulse. Of the former, erotomania and nostalgia may be taken as examples, and the latter would include the propensities to suicide, homicide, theft, incendiarism, drunkenness, and unnatural crimes, where such can be characterised as diseased. Feuchtersleben seems to hold that insanity of impulse is just a variety of mania (mania sine delirio,) in which obscure feelings in the nerves of vegetative life—the ganglionic system—acquire such an intensity as to infringe on the motor nervous sphere, and thereby occasion delirious involuntary action.

You will find mention in medical writers of such forms of insanity as fatuity, incoherence, melancholy, brutality, &c.; these are not additional varieties, but merely terms used in place of the foregoing, better employed to characterise mptoms than to construct a classification. There just five leading forms of insanity—amentia, nia, dementia, monomania, and moral insanity; ese form distinct natural groups, though neither solutely separated nor harshly outlined. From at I stated to you of the relation of partial to neral insanity, you will judge that cases of a mposite order may be of occasional occurrence. he acquired forms, by which you are to under- and all, with the exception of amentia, not un- equently merge into each other; and instances om time to time appear, of a description so in- ermediate as to be with difficulty classified. here is sometimes an alternation of one form ith another; a case of monomania, for example, ssuming, during a casual paroxysm of excite- nent, the features of mania or dementia. The rogress of the disease not unfrequently exhibits, n a single individual, every description of disordered mind. The patient is at first morally insane; then he adopts some particular delusion, and is evidently a monomaniac; delusions multiply, excitement supervenes, the mind acts sanely on no occasion, and his whole aspect is maniacal; finally, this violent cerebral disturbance produces irrecoverable mischief in the brain; the excitement abates, or assumes a chronic type, but the powers of the intellect are as much or more in abeyance than ever, and he falls into the state which is termed dementia—the natural termination of every state of disordered mind which resists the influence of remedies. In the most ordinary mode in which insanity is developed, moral disorder is the first indication of the disease. The patient labors under emotional perversion—is, as it were, morally insane before he manifests intellectual derangement; and the disease not unfrequently disappears by retracing the same steps. The patient has not completely recovered, however unencumbered the imagination and unfettered the judgment, so long as the affections, desires, and sentiments, have not regained their former character and tendencies. Until the cure is thus completed, though the individual should be reckoned sane enough to be competent to his own management, and be liberated accordingly, no one who has had experience of lunatics will regard him as sound enough to be warranted and trusted. Such an one will either acquire additional mental firmness, or be certain to relapse into his former state of disorder, upon the slightest exciting cause, or without the influence of any apparent agency whatever. He will not remain stationary, an example of a man with a new moral character—a second edition, but not improved.

I shall not weary your attention with a separate description of each of the above forms of lunacy. I have already given you certain specific distinctions, and shall now portray the generic features of insanity,—the features which distinguish it from other conditions, and which will be most conveniently taken up, with certain other particulars that require notice, in a *general description of the insane state*.

Diseases of the mind are most common in highly civilized communities, and in countries which have acquired the highest degree of political and religious freedom.

They are also, upon the whole, more common in the female than in the male *sex*,—a fact which is thought, however, to be in some degree affected by station in society. In the higher ranks, according to some observations which have been made both in Britain and in France, lunacy prevails more among males than amongst females. The more sensitive character of the nervous system in females, and their less perfect mental and bodily training, would lead us to expect a great preponderance of them amongst the insane, as there no doubt would be, were it not that the greater prevalence of intemperance and vice amongst men serves to bring up the proportion on the other side nearly to an equality.

As to *age:* insanity is not a disease of early life, nor is it so liable to occur in declining years as when both mind and body are at maturity. The most common period of life for the appearance of insanity is betwixt 30 and 40; rather earlier in the female than in the male sex. About three-fourths of all cases occur between the ages of 20 and 50. Below puberty, insanity is almost unknown, unless in the forms of congenital and accidental imbecility; by which last term I mean imbecility of mind, the consequence of convulsions, fever, or accidental injuries of the head.

The physical *temperament* which shows the greatest tendency to mental derangement is the nervous; the temperament which is least liable is the sanguine. As far as observation has led me to any conclusion on this point, I would say that the greater the mixture of the nervous and the lymphatic temperaments, the greater is the tendency to madness.

All writers concur in representing the married state as more exempted from the danger of lunacy than the state of *celibacy* is,—a statement verified by numerical returns, and still farther strengthened when it is considered that the mean age at which insanity commences is reckoned at 34.* If, then, we were to imitate the phraseology of certain statisticians who speak of "the average man," we should say that the average lunatic is a female about 35 years of age, and of a lymphatic-nervous temperament.

The moral condition of lunatics.—Most of the premonitory symptoms of insanity are evidentiary of a change in the moral constitution of the individual. The best warning is given by a metamorphosis of the natural character, of a permanent and remarkable description. The subject of this alteration has, as it were, turned his back upon himself, and become the opposite of what he formerly was. A diffident and retiring man will be found making some extraordinary exhibition of himself at a public meeting, to the amazement of all his acquaintances; or, perchance, he takes to writing and publishing productions in which he makes manifest to the whole world the symptoms of approaching disorder. I have known the cacoethes scribendi to be a premonitory symptom of madness in many instances; private matters and domestic occurrences being laid before the public in newspaper advertisements, placards, and hand-bills; nor is it an unusual discovery to find an insanely-poetical manuscript in the repositories of one who has just become lunatic. A man whose natural disposition it was to be very timid and cautious in the prosecution of his business affairs, will, in the moral disorder, which gives the first warning of diseased understanding, be found plunging into all manner of rash speculations and hazardous stocks, or even turning projector of the most bold and startling schemes. Changes of profession, pursuits, and religious persuasion, are other modes in which the alteration of disposition and temper manifests itself. A sudden passion for intoxicating liquors, contrary to all former habit, is also not unfrequent evidence of threatening insanity. In short, the sober man often becomes intemperate; the prudent, rash and extravagant; and the sedate and reserved, noisy and wild,—dispositions being acquired which seem opposed to the natural character. Changes, even in a desirable direction, if sudden, unaccountable, and extreme, are equally suspicious. I have known in such circumstances the intemperate to become, not merely temperate, but abstinent; the dull and heavy to seem active and intelligent; the careless, pious; and the timid, courageous; each of these spurious amendments foreshadowing the mental eclipse. Such reversals as described, occurring in those hereditarily predisposed, you may consider as indicative of explosion; and if you act opportunely as a physician, you will lessen the probability of your being required as a medical jurist.

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* In upwards of 1,000 cases of insanity occurring in this quarter of the country,
48 per cent were males.
52 " " females.
75 " " betwixt 20 and 50 years of age.
51 " had the nervous temperament dominant.
27 " " bilious " " "
5 " " sanguine " " "
17 " " lymphatic " " "
29 " were married.
7 " " widowed.
64 " " single.

Though a change of this description is the usual precedent of the intellectual disorder, still the moral aspect of the unsound mind is not always of the antipodean character. When insanity does occur without this sort of forewarning, the emotional features of the disease are then as likely to be a caricature of the natural outline of the patient's disposition. Passions which had stamped the mind in the state of health become dominant in a state of disease in which the voluntary power over their exhibition is impaired or suspended,—constantly diminished. The naturally ambitious man, who in his heart worshipped wealth and station, stands forth confessed and bare; he becomes a king, or at least the possessor of enormous wealth. The vain female, whose chief objects in life were dress and adulation, becomes a queen, and is alchemist enough to convert any paltry convocation of rags and straw into a crown. When insanity is marked by the predominance of some one passion, it is more broadly displayed than it ever is in a sane being; and the natural language of the emotion is such as no caricaturist could exaggerate. Such moods are, however, not generic, but special phenomena, and are seen in certain varieties of monomania. Our business at present is rather with those feelings which affect the moral portrait of every lunatic, and of these one of the best marked is selfishness.

Selfishness is one of the most prominent features of the unsound mind. A great many moral defects are comprehended in this term. It implies the decline or destruction of the best part of our social nature, the loss of the sympathetic and benevolent emotions, and, in consequence, a less control over much that is ugly and hateful in humanity. Such feelings seem to be a finer part of the moral constitution, for they are ordinarily the first to suffer from the approaching malady, and the last to be perfectly re-established. "In many persons thus situated," says Dr. Thomas Mayo, "in whom, at the time at which the inquiry is made, the reasoning powers are in a clear and sound state, and whose emotions are flowing easily and quietly, we are enabled to detect disease by observing that the patient is not going along or sympathizing with us, or, indeed, with any one extrinsic to himself. Perhaps his conversation can only be characterized as morbid by its remarkable want of relation to all that is passing in the minds of bystanders. In this point the insane are remarkably contrasted with the inebriated, whom in many points they greatly resemble. Persons in the latter state overflow with sympathy, and carry it to a ridiculous extent." We usually find that alteration or disappearance of the natural affections has been one of the earliest symptoms that attracted attention. In a lunatic you will generally observe that the ties of consanguinity are snapped, and that no interest is manifested in the welfare of friends; the mother may have forgotten her child, and the wife her husband. It is well if the loss of affection have assumed no other than a passive character, for it very frequently happens that they to whom they most owe affection are those whom the insane visit with their hatred and their violence. To them their fancied ills are attributed; but even when their relatives are not mixed up with their delusions, they are usually treated with aversion or with apathy. Not only are the natural affections lost in the overwhelming tyranny of selfishness in the insane mind, but so also are those social feelings which unite men to each other. Kindness, friendship, and sympathy, are not amongst the virtues of the insane. In an asylum you will not find much association among the inmates. It is no uncommon thing to see, in a confined airing-yard, twenty or thirty people walking about, and no two keeping company together; and in a day-room of lunatics there is very little conversation. Each one is willing enough to speak of his own delusion, or to discuss the particular injustice of his own imprisonment, but he has neither ear nor heart for the complaints of his fellows. They are under circumstances which might be expected to bind men strongly to each other, but they are not so bound. They are under circumstances which the multitude of them deem to be the consequences of unheard-of injustice and oppression; and with this powerful incentive to social action they are directed, controlled, and superintended by a very few, without ever attempting to regain the freedom which they all desire so much by any effort of co-operation. They do not combine or conspire together, not from want of intellect, but from the decay of all social and sympathetic feelings. In many hospitals the walls are so low that, though they prevent an unaided person from escaping, they are quite capable of being sealed, if the person making the attempt had only the aid of one sympathizing individual; yet the insane never make their escape in this manner. The lack of the benevolent affections miserably curtails the happiness of life; and since so many of the insane have, from this moral deficiency, no active sensation of happiness, we cannot wonder that a propensity to self-destruction is so common amongst them.

General description of the insane state (continued.) (a) *The moral condition of lunatics (concluded.)—Their selfishness, suspiciousness, timidity, and apathetic listlessness.*—(b) *The intellectual condition of lunatics—manifested in deranged voluntary power over the succession of thoughts, in delusion, imbecility incoherence, and extravagant conduct—disturbed relation of will to thought. Delusions—their origin in violent mental impressions—their hold on the belief—their resistance to interfering doubts—their absorption of the attention—most distinctly defined in monomania—concealed delusion—delusions an insufficient test of unsoundness—divided into high and low. Subjects of exciting delusions—their insufficiency to produce happiness. Subjects of depressing delusions—Thanatophobia—Panphobia—Hypochondriacal monomania—Demonomania, &c.—relative frequency of high and low delusions—modifications by sex, temperament, education, and bodily disease.*

In my last discourse I had commenced a general description of the lunatic state with the consideration of the moral condition of the insane. I described the peculiarities of that emotional derangement which is ordinarily a fore-warning of diseased intellect, and, in depicting the features of the fully developed disorder, alluded at some length to the morbid predominance of the selfish feeling, which, owing to the loss or depraved state of the sympathetic or benevolent affections, is so constantly observable in the insane. The consequences of this mental obliquity are for ever prominent in their language and behaviour, and it leads besides to the unmasking of the evil passions of human nature, which, owing to the impaired voluntary control accompanying the disease, too frequently start up in ugly activity. In saying that the insane are morbidly selfish, I use a term of very wide significance, which, as it were, epitomizes their moral condition, leaving very little to be added.

Suspicion is another feature which is pretty constant in the emotional aspect of the insane. Mistrust is said to be a natural characteristic of feeble minds, and to be the lot of those whose understandings have been but little cultivated; and it would also seem to be as natural a concomitant of mental disease. "The heart of the insane," says Esquirol, "cherishes no feeling but mistrust. This symptom increases with the progress of the disease, and augments in strength as the intellectual faculties are weakened. Yet notwithstanding their mistrust," continues he, "the insane have no foresight; they have no care nor inquietude for the future, but an extreme jealousy of everything present."

This suspiciousness of mind, this constant imagining of evil, is exhibited in a multitude of delusions. Cabals and conspiracies are suspected to be formed against them by those whose good intentions there seems least occasion to doubt. Food is carefully inspected, lest it should be poisoned; to every unusual action in those around them a bad motive is attributed; and the overheard common-places of ordinary conversation are twisted and tortured into an evil meaning towards their welfare. A female lunatic persisted in living solely on a vegetable diet during her illness, and no persuasion nor temptation could lead her to alter her resolution. After her recovery, I found that the reason of this conduct was, that she suspected the officials of the asylum in which she was placed to be in the habit of murdering the incurables, and victualling the establishment with their bodies.

There are some cases in which the whole unsoundness seems to consist in unreasonable suspiciousness: it forms not an uncommon variety of monomania in advanced life. An old lady makes herself exceedingly miserable, by the baseless delusion that she is plundered and cheated by servants, neighbours, and indeed any one with whom she has had any dealings. Within doors, no number of locks and no ingenuity of fastenings are sufficient to give ease to her mind; every box and drawer is not only locked, but padlocked to boot; and when these are opened by herself, and every article is found in the exact relative position in which she had placed it, she has still the belief that her repositories have been entered, and her property changed for similar things of a less valuable description.

It is with the utmost difficulty that one can satisfy a lunatic of the sincerity of words and intentions, and a request he looks upon as a snare. The superintendent of an hospital for the insane wished, for a special and very harmless purpose, to have the autographs of his patients. He found that he had undertaken a very difficult task in attempting to get them to comply with his proposal. He could persuade very few to subscribe their name without a great amount of trouble Some signed hesitatingly; some repented when the deed was half done, or threw down the pen after they had taken it in hand; one signed his name upside down; another effaced his as soon as he had it completed; and many refused to have anything to do with such a dangerous proposal. The document was a very curious one in many respects, but not the least interesting feature in it was the evidence it contained of that suspiciousness of disposition on which we have been commenting.

So much suspicion is not compatible with a high degree of courage, and you will accordingly observe that an unnatural degree of *timidity* is one of the defects of the unsound mind. Patients in a state of maniacal fury may be found to encounter, blindly, any sort of danger, but all other kinds of insane persons are very easily alarmed. Those of them who are characterized as dangerous lunatics are more malignant than ferocious. The ferocity which, in times not long past, led to the imposition of chains and fetters on the insane, was the lie of ignorant, timid, and lazy keepers, or the result sometimes of their barbarity. You will find neither whips, chains, nor danger, within the walls of any of our British asylums.

An *apathetic listlessness* is another prevalent mood in the insane, though one of a negative kind, having its origin in a general anæsthetic condition of the senses, combined with an enfeebled memory and abstracted or decayed attention. Unless in maniacal cases, in which there is a morbid degree of activity, the desire of action is generally lessened, often entirely lost. The sound body cannot endure the tædium vitæ of idleness, neither can the healthy mind brook want of occupation. A man must have some occupation to withdraw him from himself, or, says Pascal, he is necessarily unhappy. Now the insane are almost constantly occupied with themselves, to the manifest increase of their misery. The desire of employment is very difficult to be excited in them; they will not exert themselves either to be useful or to be amused; and curiosity, one of the marks of an active and healthy mind, is, as in some of the lower savage races, very much in abeyance.

One hears a good deal of balls and parties in lunatic asylums, and we have wondrous paragraphs in newspapers, mere puffs by vain superintendents or silly directors, describing how extra-sane and supremely happy all the proceedings were, or if any slip were, how pleasantly outré. Now having seen not a few of such things in various places, I can assure you that no ball in a lunatic asylum was ever worthy of the name; as how could it be, with the absence of such necessary elements as health, humour, wit, activity and contentment? In making this remark, I by no means intend to reflect in an unworthy spirit upon such attempts; they are most highly to be praised, if judiciously managed and not injudiciously blazoned. Such is the listlessness of the great body of lunatics, that to succeed to get them either to occupy or to amuse themselves is the hardest employment of those who have them in charge, and the one for which the highest commendation is deserved. Ennui is not a pain felt by an unsound mind. The monomaniac's delusion is his constant thought and his sole thinking: his feelings are of one complexion: he is insensible to the languor which would arise from an unvaried feeling in a healthy mind. Ennui is a hopeful complaint in the insane, for they are in a position, says Esquirol, which is adapted to render it like an active sensation that will usefully react upon their thoughts and affections.

The intellectual condition of lunatics.—In the analysis of the human mind, two things are observed to constitute mental consciousness, viz.—thought and will. The first represents that unfailing train of ideas which have their origin in an accidental series of external impressions on the senses, or which, if not ab externo, are connected together by certain laws of association. They consist of instinctive inclinations, emotional feelings, intellectual perceptions, and primitive rational intuitions. The second (will) represents the consciousness which we have of a certain amount of power in controlling or affecting the succession of thoughts. This voluntary faculty does not create ideas, it merely selects, detains, and operates upon, any particular idea of the many that crowd upon the mind. It is by this relation of our will to thought that thought becomes thinking; desire, action; and abstract mind, personality. The agency of the will is apparent in such processes as attention, judgment, and recollection, which are, in truth, voluntary contemplation, alternate and retrospective; but indeed the voluntary faculty is the essence of all intellectual operations whatever.

Now, in the various forms of intellectual unsoundness, both these principles seem in every case to be affected, though it would be more strictly correct to say, that it is the relation of the latter to the former that is disturbed. The succession of ideas is more rapid than natural in maniacal excitement, more slow than natural in melancholia (monomania with depression,) and uncontrolled by its natural laws in dementia. The voluntary power over trains of thought is defective in all cases. In mania it seems overpowered by the force and rapidity of the current; in melancholia, enfeebled by the one vast and gloomy image that has dammed up the whole channel of thought; and in dementia, permanently impaired.

Such a condition of the mind may occasion diseased manifestations of any or all of the intellectual processes, and it would not be difficult to select examples of disordered sensation, perception, attention, memory, conception, and so forth, occurring in lunatics: but the defect which is most characteristic of insanity is, as I have formerly stated, an inability to exercise the faculty of comparison, so as to evolve judgment upon one or more subjects, that incapacity being a direct consequence of impaired voluntary power over thought. In addition to such other evidence of disease as misinterpreted sensations and conceptions, rivetted or distracted attention, and wayard and irresponsive memory, there is this istinct impracticability of judgment, before there an exist an insane delusion.

When the *intellectual* signs of madness become pparent, the premonitary stage is past; the isease is fully developed. The morbid intellect f insanity is displayed in delusion, inexplicable onduct, mental feebleness, and incoherence of nguage,—pathognomonic features which I shall ow successively discuss.

Delusions are very generally but not universally o be observed in lunatics. They are, as you ill recollect, illusions and hallucinations, overning the conduct, despite the will, despite he reason. They are idealities accepted as ealities. They are errors of perception consequent upon the disordered sensations and disordered fancies, to which a diseased state of the psycho-physical relation renders the mind liable.

Violent mental impressions are the chief originators of delusion. Take the following example, which I borrow from the plentiful store of Dr. Conolly's experience. A clergyman opened a letter that was handed to him, and swallowed the seal. A friend standing beside him said, jestingly, that it might seal up his bowels. This made a startling impression on the clergyman's mind; the notion of his bowels being sealed up was a horrible one, and, spite of himself, kept forcible possession of his thoughts, engrossing his attention so violently that his will became unable to dispel the conception. The attention could not be brought to bear upon any other subject, and, if removed for a little, constantly recurred to the disagreeable idea, until at length the conception acquired all the force of an actual sensation, and came to be believed in as a reality. The power of instituting an efficient comparison on this point was lost. No quantity of purgative medicine, operating however naturally, could prove to him that his intestinal canal was not actually closed up. There was no judgment in the matter, and he became a monomaniac with this particular hypochondriacal delusion. Here, then, you observe, first, a diseased intensity of conception; secondly, rivetted attention; thirdly, diminution of the voluntary power over the thoughts; and lastly, abeyance of judgment and insanity.

A morbid impression thus completely established—converted into a delusion—has stronger hold of the belief than any impression that an actual sensation could convey. A lunatic believes in his delusion more firmly than ever he held by the truth of any real object of sense. The possibility of being deceived he cannot admit; he will sooner admit all other accredited realities to be deceptive. Those senses which act soundly enough have no power to correct the error. Sir Walter Scott relates the case of a poor lunatic in the Edinburgh Infirmary, who fancied that he was living in great state and splendour, in a mansion of his own, his only unhappiness being, that all the dainties with which his table was supplied had the taste of porridge. The palate acted an honest part, but its appeal to the judgment was quite ineffective. Any degree of doubt which may arise in an insane person's mind regarding the reality of his fancies, is of a peculiar sort, and exerts no influence, or only one of the most transient and feeble kind. "I had a species of doubt," says a recovered maniac, describing what were his feelings, "I had a species of doubt; but no one who has not been deranged can understand how dreadfully true a lunatic's insane imaginations appear to him, how slight his sane doubts." A patient of Dr. Conolly's was the subject of delusions which he occasionally suspected to be delusive, and yet he could not deliver himself from them. He supposed that he had entered into pecuniary engagements with a friend, which would occasion his total ruin. His words were, "I know I have not, I could make oath that I have not, and yet I cannot get rid of the impression that I have; and I am continually haunted with the dread of coming to the workhouse." This idea had led his thoughts towards suicide. He had tried in vain, and frequently, to get rid of the delusive impression by the exercise of reason, and felt conscious of the want of some help. "I think," he would add, "that I must get my friend to write me a letter, assuring me that I have not made this ruinous agreement with him; perhaps that may convince me." "But," says Dr. Conolly, "in these cases, until the morbid state is removed, conviction seems inadmissible by the mind: a man will send for his banker's-book, see that he has a large balance in his favor, and persist in saying that he is not worth a farthing."

The delusion of a lunatic is not an occasional but a constant error of mental action. "It is the dominant idea in his mind," says Dr. Pagan; "it is not a subject which occupies no more of his attention than its interest would seem to claim. He does not merely think about it erroneously, but it is *ever* present to his mind; talking, he speaks of it; silent, he thinks of it; sleeping, he dreams of it. No other subject has a proportional share of his attention; he has no sympathy for other men's interests."

Monomania is the form of insanity in which delusion is most distinctly defined. In the other varieties it is frequently difficult to point out any fixed governing idea. The maniacal are in a state of delirious excitement, in which everything wears a strange aspect, and the judgment cannot be brought to bear efficiently on any one idea. Their delusions are constantly varying with surrounding circumstances, and have no marked persistence: an insane notion arises, disappears, and is replaced by some other idea equally unsound, and possibly inconsistent with its immediate predecessor.

In monomania there is one particular, fixed, and dominant delusion, or there are a set of relative subjects on which the patient always manifests his derangement. If he think himself a king, for example, he may be comparatively rational on all matters unless those which connect themselves with the idea of his royal condition. But even in monomania, a delusion absolutely and persistently single is a rarity; for, by and by, the intellectual blemish is well seen to be surrounded by other marks of unsoundness, no longer latent. It is not, as ordinarily stated, that one delusion produces more; that one maggot generates another; the single intellectual error extending its influence like a morbid virus. I have already told you that partial insanity as opposed to general is not a true phrase: it is only the exhibition of unsoundness that is limited. The single delusion is but the first manifestation of a mind as wholly unsound, though less intensely, as that of the bewildered maniac. However, be this as it may, true it is, that, when you have a single delusion, the chances are that you will have many more evidences of disease. There are few monomaniacs in whom the mind acts with vigor and soundness on subjects even widely removed from that of their delusion.

An insane person sometimes seeks to conceal the existence of delusion. I believe I may add that he never succeeds. There are such things as concealment of the nature of the delusion; but that some delusion exists in the mind is always in some measure expressed in habits and conduct. The attempt at concealment is to be witnessed only in cunning monomaniacs, who have become aware that they are deemed insane. Monomania is, however, the very form of insanity which gives rise to judicial difficulties, and in which it is of the greatest importance that the existence and character of the dominant delusion should be clearly displayed. I have more than once known such a lunatic to conceal the cloven-foot so successfully as to impose upon a most competent and persevering examiner, who was ignorant of the particular point on which the power of rational discussion was impossible. The insane often appreciate the motives which ought to lead them to hide their aberration, and are well aware of the subjects on which it is necessary to exercise concealment, in order to pass muster as sound in mind, but for all this they seldom or never succeed in concealing their delusion when they are directly questioned regarding it. The most that a lunatic desirous of passing as sane can in general effect is not of himself to introduce the subject on which his judgment is alienated; but when he is expressly catechised upon it he either refuses to answer any queries regarding it, which is to him a very great effort, or he certainly stumbles in his replies, and makes evident the unsoundness of his understanding. An insane lady had so far imposed upon a philanthropic visitor of the asylum in which she was confined, as to lead to a private and influential representation to the sheriff that she was unnecessarily and unjustly deprived of her freedom. The sheriff accordingly called unexpectedly at the hospital, and had a private audience in order to satisfy himself of her condition. She answered every question in so rational a style, as to afford no apparent grounds on which her liberation should be refused. Upon consulting the case-book, however, he found that she was said to entertain the belief that she was the Duchess of Wellington, or at times the Baroness Rothschild. Having obtained the key to her mystery he held a second conversation with her, when, in spite of her anxiety to impose upon one whom she knew to have the power of terminating her confinement, she exhibited such evident insanity, that he left her apartment holding up his hands in amazement. She could not resist a direct interrogatory upon her rank of Duchess.

Common as delusions are amongst the insane, they are not prominent, nor possibly even existent, in every case of the disorder, and therefore the absence of delusion is no test of soundness. Delusion is merely one indication that the disease has extended to the intellectual faculties, and is therefore no test of mere imbecility, of moral insanity, or of the first stage of many cases both of monomania and mania.

It is usual to divide the delusions of the insane into *high* and *low*, or *exciting* and *depressing*, according to the mode in which they affect the patient's self-esteem. What is commonly called a depressing delusion may be conjoined with both mental and corporeal excitement, and a high delusion may exist with much apathy of mind and debility of body.

Most of the high delusions of the insane consist of ideas of imaginary rank and wealth; of over-estimation of mental and bodily powers, and of imaginations of a less sublunary kind, leading the subjects of them to consider themselves as inspired by Heaven. However elevated the insane idea may be; and however much calculated to render the possessed of it independent of the influence of immediate and surrounding circumstances, it is very seldom a source of happiness and comfort. Such high notions seem always to cast a shadow on the mind; there is a hollowness in the happiness such as interferes with the exalted fancies of feverish dreaming, and a frequent recurrence of moods of depression, which are little consistent with the professed state of beatitude. As a class, lunatics are persons experiencing a great amount of misery: the feeling of pleasure is rare amongst them; laughter is almost unknown, at least as the natural language of joyous emotions; and it is only among some of the imbecile that unhappiness is neither expressed nor seen in the countenance or the conduct.

The low delusions are of more various kind, and require more special description. In this list, prospective feelings of dread, retrospective and present suspicions, hypochondrical miseries, and terrors of the future state of existence, form the most remarkable groups. The dread of being killed by their enemies, or of suffering death by the hands of justice for some form of fancied guilt, is a common species of delusion amongst the insane (*thanatophobia*,) and one which it is well to be aware is perfectly compatible with the desire of killing themselves, and which is indeed very ally associated with the propensity to self-deuction. Many are overshadowed by some imnding and gigantic evil, vague, but dismally l and irresistible, which they cannot describe. very object wears a threatening aspect; they l terrors unaccountable; their hearts are sunk thin them; tears are scarcely ever from their es; and their whole occupation is to watch for e bursting of the dark cloud that is to destroy em for ever (*panphobia.*) Some live in the connt dread of poison mixed with their food, adinistered instead of drugs, placed upon their othes, hidden in their beds, and poured into eir ears, or administered per anum during ep. Others labour under the fear of future ant, and, with no ground for anxiety, believe at they are on the high road to destitution and ggary. Their past circumstances seem like an perience of purple and fine linen when comared with their present condition; and the future ey regard as a vision of sackcloth and starvaon: such misfortune has been brought about by nemies who have plundered and cheated them, r has come upon them, by the vengeance of eaven, as a punishment for sins. Domestic jealusy is not an uncommon character of the insane elusion, particularly amongst males. Men are lso more subject than females to another imagiation which is a frequent accompaniment of unacy,—the conviction that they are the victims f a widely-extended conspiracy. Every one with whom they come in contact is sure to become concerned in the great plot which is hatching gainst them. Macnaughten, the lunatic who assassinated Mr. Drummond, was a monomaniac of this class. For many years he had imagined himself an object of persecution, first to the Jesuits, then to the whole body of Roman Catholics; these were latterly joined by the Police, and finally, he believed, by the whole Conservative party. There is a numerous class of the insane in whom strange bodily sensations give rise to the notion that they are the subjects of strange pathological conditions, or of actual physical metamorphosis (*hypochondriacal monomania.*) The sexual organs are very frequently the subject of hypochondriacal delusions among the insane. Obstructions of the intestinal canal, displacement of viscera, the sensation of living animals within the cavities, and various monstrosities of external appearance, are also common imaginations in this class. Depressing delusions connected with religious subjects are very frequent, particularly amongst the female insane. Such persons are beyond the power of salvation, are under the curse of the Deity, have committed the unpardonable sin against the Holy Ghost, have directly bartered their soul to the evil one for some worldly pleasure or advantage, or are actually already in the state of eternal torment. Witchcraft, and various forms of unseen agency, are other subjects on which the insane often manifest their lack of judgment. They have been permanently injured by the incantations and evil prayers of others; their thoughts, words, and actions, are not the effects of their own individual will, but are the devices of external machinations, or are the doings of evil spirits around them, or within them. Now and then a patient will be found who has the painful fancy that he is actually possessed by the Devil, that his soul has been taken from him, and that Satan himself has taken possession of his frame (*demonomania.*)

Delusions are liable to be modified by such circumstances as sex, age, temperament, education, and bodily disorder. Depressing fancies are much more common than those which are called exciting. In 287 instances of monomania, I found that the low delusions amounted to 168; the high delusions to 76; and those which were of an indifferent order to 43. High delusions were more frequent in the male than in the female sex. The only temperament in which they relatively predominated over those of a low type was the sanguine: in all the others, particularly in the lymphatic or deteriorated sanguine, depressing imaginations were the more numerous.* High delusions have a tendency to be transformed into those of a depressing character. Education modifies the nature, but more strikingly the expression, of insane convictions. An intelligent person, for instance, will not be found styling himself "the fourth person of the Trinity;" nor will an educated female write her name "Margaret Rex." The sensations which compel an ignorant lunatic to express his belief that he has been bewitched, would, in one above superstition, lead to the notion that he had been brought under the influence of some kind of magnetic or mesmeric agency. Bodily disorder may, there is some reason to think, produce a modifying effect. Disease of the lungs, or of the encephalon, are more likely to be conjoined with delusions of a high cast, than those of the kidneys or heart are. Almost all cases of insanity which are threatening apoplexy or paralysis, are associated with high delusions. In those cases, also, which are complicated with the peculiar paralysis of the insane,—an insidious general palsy,—exciting fancies, are nearly universally observable. Such persons, while they are scarcely intelligible, from defective articulation, while they are passing their urine involuntarily, and staggering with extreme difficulty from one chair to another, still have a shattered physiognomy of happiness. They are in a paradise of excitement, leading armies over Alps, or dispensing the riches of India. When death is making daily approaches upon them, they are in a state of miraculous health; and when they are in his very clutches, they are in the arms of victory, or the glories of Solomon's temple.

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* In 244 patients in whom the modifying influence of temperament was observed, the following ratios existed:—

	High delusions per cent.	Low delusions per cent.
Aggregate cases, ...	31	69
Nervous temperament, . . .	30	70
Bilious, . . "	26	74
Sanguine, . "	60	40
Lymphatic, . "	8	92

General description of the insane state (continued,) (b) *Intellectual condition of lunatics (continued)—Imbecility of mind—manifested in various habits and actions—exemplified—Imbecility in thinking—exemplified in writing—intellectual disorder increases with the prolonged effort at control—a lunatic's views of the insane conduct of other lunatics—may be aware of his legal position—the characteristics of lunatic epistles—exemplification of the expression of delusion. Incoherence—not a form of insanity, but a possible symptom in any form of the disease; best marked in mania and dementia—incoherence in monomania. Extravagance of conduct—the result of delusion—exemplified—motives not traceable in insane actions—criminal deeds of the insane not indicative of viciousness—unsuitableness of insane actions to proposed object.*

IMBECILITY is the next mental characteristic to be noticed; but, before alluding to the intellectual indications of it, I may specify some common actions and propensities in the lunatic state that manifest a general weakness of mind. In many, tears flow from very slight emotion, just as may be usually observed in cases of paralysis; and some are shaken by violent fits of laughter, apparently without any adequate reason. Laughter from slight or no cause is not an uncommon symptom in dementia—more common, perhaps, in female than in male lunatics. This risable propensity indicates no appreciation of humour: an indifferent impression on any of the senses may induce it: the sight of a stranger—a word spoken when there is silence—or even the motion of a finger. I doubt in many instances whether the laugher is even aware of his own mirth.

Weakness of mind is seen also in a childish facility of being pleased with trifles, showy articles of dress, silly ornaments, and other things which, offered as consolation, a sensible understanding would despise, but which in a lunatic asylum are daily found advantageous in assuaging grief and conferring temporary pleasure. It requires no little attention to prevent many of the insane from making their personal appearance ridiculous by their dress. When they were more generally at large than they are now permitted to be, and when every village could show its fool, these poor objects could be distinguished by strangers by the monstrosities of their apparel.

Some lunatics exhibit a strange propensity to collect and amass together all sorts of unconsidered trifles. I was taken by an old man who had this craze to a small outhouse in which he had collected a treasure of this sort, in which his whole soul was so much engrossed as ever a miser's was in his money, or a biblio-maniac's in his books. The collection, if not admirable for its value or rarity, was astonishing for its extent and variety of absolute rubbish. Pieces of old rope, filthy blacking-bottles, broken crockery, rusty iron, hens' feathers, showy rags, buttons, fish-bones, and a variety of other matters which had by oversight escaped the dunghill, were there laid up for admiration, and were esteemed by their collector a most attractive and imposing spectacle.

Certain demented persons find a childish amusement in jingling together words of a like termination. I have heard some of those who exemplified this whim go on making rhymes for an hour at a time, the similarity of sound in certain words seeming to be the only object in their continued utterance of an incoherent rhapsody. Others will go on reiterating some unmeaning convocation of words or phrases for the greater part of a day. I recollect one instance in which the attention to the sound of words took rather a singular form. The individual had become fascinated in some way by the sound of the vowel O, which he marked energetically whenever it occurred in his speech. This was, however, not so much an indication of mental feebleness as of obedience to an out-of-the-way delusion. He had the idea that there was a spell upon him impelling him to use this letter, and was no easy man to converse with, for he got furiously displeased with those that spoke to him if his ear detected the frequent recurrence of this vocalism in the words which they employed.

Feebleness of mind, instability of attention, and loss of self-control, are apparent in most things which lunatics attempt. The endeavour to instruct them in any new thing is a very difficult business; and, unless in so far as it aids the moral treatment of the disease, very unsatisfactory in its result. Occupations of various kinds are now carried on in all good lunatic hospitals; but one sane workman would be able to work against two or three lunatics, and his work, under similar instructions, would be superior in quality as well as in quantity.

It is not an unfrequent thing for a lunatic to sit laughing and talking to himself without being aware that he is so occupied. I remember one particular example of enfeebled mind in which the chief feature was that the patient, when left to himself, fell to talking aloud, his speech being sometimes at the full pitch of his voice, and the matter of it anything but agreeable to those who were within earshot. His talk, besides being noisy, was highly obscene, and rendered him such a nuisance both to his own house and the neighbourhood, that he was sent to a lunatic asylum. I found that in general he was not even aware that he had been talking at all, and when checked he would deny that he had been speaking ever so softly. When the matter of his discourse, however, was represented to him, he then allowed that he had been *thinking* in the way described, but persisted that if he gave utterance to his thoughts he was not aware of it at the time. He coined his thoughts into words without being sensible of his so doing. A person in such a state gives vent to much greater incoherence than his conversation ever manifests; and, accordingly, this gentleman, though evidently of enfeebled mind, was capable of conversing in a rational manner, and for any length of time, but the soiloquy of his solitary thoughts was a most lunatic hapsody. The act of conversing with such an ndividual serves the purpose of steadying his houghts, the part which a second person bears n the conversation affording points of direction ind support to the vagrant attention.

Imbecility in thinking is always in a greater or less degree the accompaniment of insanity. The ideas of the insane become objects that they are no longer able to deal with by voluntary effort. Volition has not weight sufficient to make such an impression as will regulate their course. Unless the ideas can be effectively dealt with by the natural amount of power in regulating and controlling their succession, the processes of attention, memory, and comparison, must be impaired, involving with them the faculties of abstraction, imagination, and judgment. The very endeavour of a lunatic to influence the current of thought serves often but to increase the confusion; and, if he manifests imbecility in thinking in conversation, in which he has the directing aid of another, he is likely to make that imbecility still more apparent when he is left to himself, and allowed to attempt giving utterance to a chain of connected and related thoughts. The attempt to write upon any subject is the one which will render the intellectual derangement most plainly manifest; and, in a medico-legal view of insanity, it will not be throwing away your time to give a few examples of failure in converting thought into thinking, and thinking into words. These I select not so much as being the most characteristic that might be given, but as the most convenient, from their brevity, and the absence of circumstantial and personal allusions. You are to understand that they are examples rather of special than general lunacy, and also that they are the production of those whose education and acquirements enabled them at one time to make a very different exhibition.

A gentleman whose mind had fallen into a state of feebleness, the consequence of a previous maniacal condition, but who could in the slighter effort of ordinary conversation manage to pass muster tolerably well, thus displays his inability to deal with his thoughts when he attempts to write a short letter. His object in the example which I am about to give seems to me to be to express something like the following ideas:—I have no particular object in writing to you at present, unless to take advantage of our former intimacy, and to prove that I consider it a duty to remember you; and I hope that, whatever circumstances occur, we shall still continue to have the same friendly feeling toward each other. Such may, I think, be considered the aim of the epistle. It would be a weak mind that would resolve upon sending a letter with no other object than the above, unless it were to be made a longer and more interesting communication than such a brief statement would be. The way in which he succeeds is this:—"My dear sir,—I cannot but exercise a reclaiming petition in my favour, and therefore bring to view the social intimacy in which we formerly stood connected, and in compliance soften the obligatory duty. We may still aspire to a tangible hope at least to meet the crisis of passing events, and in fellowship conciliate our conditions in like manner. The confiding heart will then furnish its results to a merited condition. With the basis of these propositions, suffer me to conclude, with the greatest esteem, your dutiful friend, &c."

Here is another instance of a similar kind:—

The patient, in consequence of having received a visit from an acquaintance who invites him to pay a visit in return to his house, thinks it necessary to make a written acknowledgment of so much attention, and acquits himself as follows:—"I was particularly happy at the pleasure to see you last day, and more particularly the most discriminate satisfaction to learn of the manifest surety of all terminating to a good effect." (His friend had probably consoled him with the assurance that he would regain his health and freedom.) "I cannot too much estimate the agreeable confidence reposed in me, and the marked attention so constituted of the family, and even friends. This ought to give me a conviction of the good society and ability of influence in point of politeness with whom I judge versed to form acquaintance. If I could see your place I think I should find it curious." (This is not a piece of naïveté in allusion to his restricted freedom, but merely his mode of saying that his friend's residence was well worthy of a visit.) "My motive would be chiefly to see it both as regards natural and that of superficial connection as to improvement. I beg to be most kindly remembered, and I am, &c."

It usually happens that the confusion of ideas gradually increases with the prolonged effort to express them. The first replies of a lunatic to a course of questioning constitute the best exhibition of his faculties; as the conversation continues, the replies become more and more insane in their character. The same thing is often exhibited in writing. The following is rather an amusing example:—One of the gardens to which the patients in a lunatic asylum had access having fallen into a state of disorder from neglect, an inmate who had something of a taste, though an insane one, in horticultural matters, chose to make the following report on the subject:—"In regard to the southern airing ground," writes he, "the shrubberies and flower-pots would be much improved by some attention to the same; therefore the rose-mounts might have a little manure added to the soil, as this appears to be the primary point with respect to these, and cleaned out, and the roots kept free of each other as well as the bushes. The general effect otherwise may speedily be got in trim, when it may form altogether a free and genteel aspect. The box edging may also form an important source of interest to the occupiers by doing it neatly, and at the same time not to lower their proper estimate of themselves as subsidiary exercise for a short time. No doubt it would have been in better order had it not been for the injuries it sometimes receives by the poor invalids that practise their much to be deplored folly; but when the heart of influence has got an acting corrective guide, it sweetens every effect to impress the mind with the beauties of nature and the direction of man, generally speaking." The reporter gets on very well for a short space, but ultimately loses himself in a maze of words. The "much to be deplored folly" so complacently referred to, and which in the epistle is the initiatory phrase to the deplorable folly of the writer's own words, shows that a lunatic may be perfectly aware of the insanity of his companions, though insensible to his own deficiency.

It is, however, not an infrequent evidence of the diseased imbecility of the intellect to find that the lunatic is not cognizant either of his own or of others' delusions. He is unable to discover anything extraordinary in the conduct of those around him. A maniac he considers to be a very lively person, something too much so perhaps; but he is not struck by anything irrational in his behaviour. It is often the first mark of convalescence for a patient to become sensible to the absurdities of his companions.

I may here direct your attention to the fact that lunatics, though blind to the defect of their own judgment, are often sufficiently aware of the estimation in which they are held by others, and have a perfect knowledge of their irresponsibility in the eye of the law. For example, a lunatic seeks to gain his freedom by bribing his attendant with a promissory note for a considerable amount, and in a private communication to one of his friends tells what he intends to do, remarking that of course there is no danger of loss to be apprehended, for that his position incapacitates him from being lawfully a party in any agreement. This might be pleaded by the patient's curators or his heirs, but not at any time by himself; for it is a principle in law that no man shall stultify his own acts. Not long ago, under my own observation, an insane patient made the attempt to destroy the life of his attendant, who was at the time in a stooping position, by suddenly snatching up a spade and aiming a blow at his head. Manslaughter, he said, was of little consequence to him, for no madman is punishable by law. You will find many instances of a similar kind on record, and in regard to them all you will notice that they occurred in persons who knew that they were considered to be insane: indeed, they are all related of patients under restraint; and such speeches do not indicate that the individual is aware of and believes in his own madness, but only that he knows that he is accounted insane. No person, therefore, who falls suddenly into the state of mental derangement and commits a deed of violence, can be supposed to do so because he knows that he will be exempted from punishment on account of the state of his mind. A criminal lunatic does not believe in his own insanity at the time that it is pleaded for him by his counsel. He may become aware of his legal position only when experience has taught him how his conduct is judged of by the world.

The following short attempt at letter-writing is a lamentable example of imbecility: it was nearly the forenoon's occupation of one who was in his time reckoned a very clear-headed and intelligent professional man:—"Dear sir,—You are directed pull down all authorities municipalities and powers in which I am invested, and to regard me as extinct and not monumental. You are feudally you hereby required to remodel all authorities powers and dignities but not you are in my name not for the space of five days less or more not exceeding ten years but not in my name not not.—Yours, &c." The production, to be duly appreciated, would require to be seen. It evinces, besides delusion, great decay of the faculties of attention and memory, and an extraordinary inefficiency of the voluntary power over the current of thoughts.

Though the examples given are all of a brief kind, you are not to suppose that brevity is the characteristic of insane epistles. And here I may take the opportunity of making a few observations on such productions. The letter of one labouring under mania will bear every possible evidence of his condition. The handwriting will not be like his ordinary handwriting; the page will be blurred, blotted, and disfigured; the words frequently misspelled, omitted, and misapplied; the letter probably grotesquely folded, and put up in some absurd way; and the matter rhapsodical, incoherent, and influenced by his delusions. Such a communication is not likely to be very long. On the other hand, the letter of a monomaniac will probably be very much the opposite of terse. A monomaniac, as he never wearies thinking or speaking of his delusion, does not condense when he comes to deal with it in writing. Such a letter, while it may be tolerably connected, and manifest possibly considerable activity of mind, will usually be found to be of a most extravagant length. He knows no limitation but the amount of paper he can at the time command. It will be like a web of inky tartan, crossed and re-crossed; warp and woof of it covered with his insane crotchet,—his insane crotchet alone. Many of the partially demented have also a great plenty of words,—so great, that they could apparently continue writing for ever. Such productions are distinguishable from the prolix communications of the monomaniac by the constant incoherence of thought and language displayed in them. When the imbecility of mind is great, the epistle is very short, from evident want both of ideas and words.

The epistles I have adduced have exemplified the intellectual feebleness of the insane, rather than their diseased imagination and loss of judgment. I shall now finally give you one example of the expression of delusion: it is to this effect:—"A mutual friend informs me that he was with you this morning, and that you was expressing a desire of hearing from me. It is a very long time I have been here, almost fifteen years. I ave seen you twice. If you would give me a all occasionally I would take it as a favour. For what reason have I been here such a length of ime? As a madman or an idiot? No! There is not a madman or an idiot here, and has not been during the time I have been here. For what purpose, then, are they or I here? Am I here voluntarily? What say you? You know I am not. We who are here are all operated upon by zinking mechanicals. I should think by this time the nature of these is in some degree known beyond the walls of this place, and that yourself know something of them. Their operation is now general over the whole earth, from pole to pole, and from east to west. Of the structure of the mechanicals I am ignorant. A chief part of them, I understand, is under the surface of the earth. From information given me through my own mouth by some of those persons who operate by means of these mechanicals, I understand that this globe is not a spheroid, but of the shape of a kettle-drum, an instrument used for music. The crust does not in any point exceed a thousand miles, in some cases not half a mile. The latter takes place at the bottom of mountains. The thousand miles is at the pole. The other part of the interior of the globe is a cavity, with light equal to that at the pole in December. The extent of the cavity is from one thousand to twenty thousand miles. In this cavity the zinker is placed in a balloon, in which he travels with the speed of electricity: besides this, he has the benefit of the earth's motion when twenty or forty miles below the surface. He perforates whenever he wishes to make observations. A new era has taken place in medicine. The zinkers have already surveyed all the inhabitants of the globe, and, according to their information to me, of the correctness of which I have no doubt, they have improved the breed of the human species. Their work in curing and preventing fever and other diseases affecting the general system is silent, and perhaps almost unknown. Cases, the cure of which would be considered miraculous, are not yet completed, although I understand entered upon. These are cases of blindness, deafness, and lameness. These in all possible varieties have been surveyed, and are all curable, and to be cured, over the whole earth, by means of the zinking mechanicals. When?—I am yours, &c."

Incoherence is an indication of the intellectual disorder in insanity on which I shall not long delay. Suppose that a person of sound mind were to give utterance to his internal thoughts just as they arise, the soliloquy would probably be a very rambling one, but it would not be incoherent. He would be sensible of the relation that regulated their succession, and even an auditor would be able to trace something of the connection of each thought with those that preceded it and those that followed. There would doubtless be certain links that had a disjoined appearance, because every one has certain special ties of association that are peculiar to his individual habits and experience; but on the whole there would be evidently a method in the thinking, and intelligible relations betwixt the several ideas. The incoherence of lunacy is not merely the expression of the vagaries of an unreined imagination. In its highest degree it is a string of ideas that have no relation but that of sequence, a sequence of *non-sequiturs*, so to speak. Incoherence results from all causes that occasion loss of voluntary power over thinking and expression. It may be the temporary consequence of undue emotion, the necessity of influencing delusion, the evidence of impaired memory, or of distracted or enfeebled attention.

Incoherence has sometimes been termed a form of insanity, and the word used as synonymous with a variety of dementia; but though a symptom which is best observed in dementia following mania, it may be a feature in every form of insanity. It is a more usual and more early symptom in the mental disorder of the weak-minded and the uneducated, than in that of the better endowed and better instructed. In mania, whenever the excitement runs high, the ravings of the patient are remarkably unconnected. In such a condition the symptom originates in a distracted state of the attention, occasioned by the delirious course of images through the mind when the associating faculty is deranged. The speech is often seen to be a tissue of half expressed thoughts, the images following each other so rapidly that language cannot overtake them. In dementia, incoherence is the language of an enfeebled and unstable attention. This faculty is the union of perception with desire, but in those who have fallen into the state of chronic dementia the voluntary element in mental action has become so impaired that the faculty of attending is almost lost. Dr. Haslam gives an illustration of this state of the mind in the case of a man who was unable to tell any story straightforward from beginning to end. He would begin with the best intentions, and proceed a little way tolerably well; but the chairs and tables, and all the objects around him, a hat hung upon a peg, or an ornament on the chimney-piece, would become interwoven with his narrative, and lead him from subject to subject. The demented are loquacious about things which have neither sense nor connection, reason nor rhyme. "They speak," says Feuchtersleben, "in the same breath of sabres and toothpicks, children and hats, broken pitchers and dismasted ships." In these cases of partial insanity, so called, in which the patient is said to be insane on one subject or set of subjects, it is common enough to find, especially when the case is of some continuance, that, however collectedly the patient may express himself on other subjects, upon this, his weak point, he cannot give utterance to his thoughts in a coherent strain. The patient is not unsound in mind simply as entertaining a delusion, but still further intellectually disordered that he is also incoherent in reference to his error in judgment. A monomaniac is frequently not merely deluded, but unintelligible: deluded and incoherent on all points connected with his delusion.

Extravagance of conduct.—The intellectual disorder of lunatic patients, besides being manifested in delusion, imbecility of thought, and incoherence, is also seen in their actions, in unaccountable deeds of violence, unnatural impulses, irrational attempts at impossible ends, unfruitful experience, and an insensibility to many forms of discomfort.

Where not merely automatic or instinctive, lunatic actions are the result of the instigation of delusion, though the connection is not always to be made out. Deeds which seem to be incomprehensible may owe their absurdity not to want of premeditation or design, but to insane reasoning in connection with a hidden governing delusion.

An excited maniac spent his time mostly in turning somersets on the ground, which was certainly an absurd and dangerous occupation for a person past his boyhood, and whose business was the grave study of theology. There was no alleged or apparent motive, and little other indication of delusion. I came to understand, from his own information afterwards, that this was done at the instigation of a voice in his head, as being the mode of worship most acceptable to heaven.

Another manifested a strange propensity to climb up the interior of chimneys, to the great danger of his life: in truth, he narrowly escaped suffocation and burning. He was for a time constantly bent on this as the great aim of his existence. It was an action which no one could pretend to understand, unless as a peculiar kind of suicidal inclination, which however it was not. He told me after his recovery that he believed that the only way in which it would be possible to persuade mankind that he was truly the emperor of Russia, as he then supposed himself to be, was by ascending to the roof of the house in that manner. He was a silent lunatic, whose actions were the source of much care and anxiety, and whose delusions could never be surmised.

Professor Alfred Taylor adduces a case which seems usefully illustrative here,—the case of a young man whose insanity led to a criminal deed such as never could have been anticipated from the character of his delusions. "He was a person of mild manners, and laboured under a delusion connected with windmills. He would go any distance to see a windmill, and would sit watching one for days together. His friends removed him to a place where there were no mills, in the hope that this strange propensity would wear away. He enticed a child into a wood, and in attempting to murder it, cut and mangled its limbs with a knife in a horrible manner. How would any sane person," says he, "have connected this delusion with attempted murder? Yet it turned out that he had taken the resolution to commit this horrible crime in the hope that he would be removed as a punishment to some place where there would be a mill."

The violence and destructiveness of which the insane are at times guilty, is often not the evidence of viciousness, but the consequence of disordered reasoning. For example: a maniac, during his paroxysms, amongst other acts of destructiveness, used to occasion much trouble by tearing his shirt and bedding into shreds during the night. After recovery, he accounted for so doing in this way. He said that he was perfectly aware of what he was about, but that he had no idea then that it was anything wrong; on the contrary, he did it more to please others than himself, and actually believed that it was a very meritorious action, which would do some vague kind of good to himself and others, provided he succeeded in tearing the articles into certain determined shapes. He was very much disappointed to find, when visited in the morning, that he was blamed instead of being praised by the attendant; and this he attributed not to having torn his bedding, but to his not having succeeded in making the fragments of the proper shape.

In the published narrative of one who experienced and recovered from a lengthened attack of mental derangement, the same absence of malice is prominently represented. "I knew no malice," he says, "no vice. I imagined that the keepers loved me and were all deeply interested in the salvation of my soul; and I imagined, too, that I loved them deeply. Yet I wrestled with them, and offered to do so with others, and struck many hard blows, sometimes, as one informed me, making it difficult for three men to control me; yet, whenever I did this, I was commanded that they wished me to do so, to prove my faith and courage, but that they were commanded to prove both till they were satisfied of my sincerity." . . . . "It was a great delight to me to get my hand at liberty, even for a moment, and the first use I usually made of it was to strike the keeper who untied me: directed by my spirits to do so, as the return he desired above all things else, because he knew I was proving my gratitude to the Lord Jehovah at the risk of being struck myself."

Thus you will observe many criminal acts might be done by a lunatic without a criminal motive. He might know abstractly that it is wrong to burn or destroy, without being aware that the particular deed of violence which he is committing is any other than good and praiseworthy. We are not likely to trace the motive in the action that an insane person has committed, nor, although he may have set about the action, and carried it out by the very means and in the very way that a sane person might have done, can we infer that he therefore was in a position to distinguish right from wrong.

The acts which a madman performs in obedience to his delusion are frequently not merely unindicative of their motive, but ridiculously unsuitable to the object intended. A patient walking about one of the gardens of an hospital, generally picked up little stones and threw them over the wall, because she understood that the house was by-and-bye to be consumed, and she wished to make her escape. She never attempted to force the door or climb the enclosure, nor did the experience of any preceding day suggest the futility of her persevering in this mode of seeking her object.

General description of the insane state (*continued*)—(c) *Insane impulses*—(1) *The suicidal impulse—Suicide amongst the insane—its Lunatic characteristics—Medico-legal consideration of suicide—Felo-de-se—legal consequences—Self-murder, insane suicide, and suicidal moral insanity—Circumstances of these contrasted—Suicide from suggestive opportunity, fascination, imitation, &c. When is suicide to be deemed an act of insanity?—Legislation on the subject of suicide*—(2) *The homicidal impulse—Medico-legal consideration of homicide—Insane homicide and homicidal moral insanity—Reil's description of a paroxysm of mania without delirium—Delirium in agendo——Criminal homicide and insane impulses contrasted—When is homicide to be deemed an act of insanity?—Connected delusion—Contemporaneous delusion—Consecutive delusion—Moral insanity.*

THE extravagant conduct evidentiary of intellectual disorder, which we have just been considering, does not unfortunately comprehend all the diseased actions that lunatics commit. We have yet to speak of those which do not arise out of delusion solely, but are rather the exponents of the diseased will than of deranged understanding. Insanity is not in every instance want of wisdom merely, but often want of virtue also; it may have the aspect of crime as well as that of folly. When the former predominates, the medico-legal difficulties are great. Lunatics are subject to a variety of *diseased impulses*. This is not merely a medical assumption, but a fact proved by the nature of the actions to which they lead, and the testimony of those who have experienced them. There are no psychological nor physiological grounds for denying that these morbid propensities may be the sole indication of mental disease, and the doctrine is upheld by the testimony of many who have felt its truth, and is admitted by all who have had opportunities of studying the pathology of the mind. When such diseased impulses appear to be uncombined with delirium, they form varieties of what is termed "moral insanity"—that species of insanity (called partial) in which the outward exhibition of the disease is limited to the emotional faculties and the power of self-control.

The suicidal impulse.—The lunatic propensity to self-destruction is the one which we shall first discuss: it is the most common, and certainly not the least curious. The homicidal impulse is only a diseased manifestation of the destructive power, and of the natural inclination to revenge—of tendencies counteracted by moral considerations only; so with kleptomania—so with dipsomania: but self-destruction is a defiance of the strongest instinct of our nature, and, if sanely executed, the extremest assertion of personal freedom.

Amongst the insane, suicide is most frequent in those labouring under monomania with depression, but it may occur as a consequence of any of the forms of insanity. I have known it to be committed by one labouring under extreme and long-standing dementia, in whom there had never been the slightest grounds for suspecting such a desire. In a thousand lunatics, the suicidal inclination was clearly developed in a hundred; and of these, five succeeded in effecting their object. It may be the result of delirium, or false perception, of delusion, of sudden impulse, of insane reasoning, of suggestive opportunity, and of example. It is chiefly to be dreaded in those lunatics who are fond of solitude, and who are the subjects of melancholy, insane terrors and religious delusions.

The suicidal propensity of the insane has morbid features in addition to the disease manifested in the impulse. There are inconsistencies in the modes of its accomplishment. The hypochondriac believes that he is dying of an incurable malady, and is miserable because he is dying; yet he seeks, nevertheless, to terminate his own existence: a monomaniac, fearful of everlasting torments, eagerly seeks to anticipate them with violent hands; another, fearful of the gallows, bends every thought to compass a noose for himself in some unseen corner, apart from those that watch him: and a lunatic who believes that he is already dead, and in the other world, is not by any means to be entrusted with a knife. The delusion of an insane person impels him towards suicide, but often it is suicide in a particular way. He is fascinated, say, by the notion of hanging himself, and requires much care to prevent his design; but, if he is successfully thwarted in this, he may often be trusted with other means of injuring himself. The person who is on such an account compelled to sleep in a bare apartment, whose walls do not exhibit the temptation of a single peg or projection, upon a low bed without posts or curtains, and whose framework is tightly screwed to the floor, may be perhaps allowed with safety to eat his meals with knife and fork, and to enjoy other liberties and comforts which must be denied to others whose suicidal taste is of a different description. In the same way, a lunatic may go on contriving how he shall find an opportunity to cut his throat, to the neglect of all means that may present themselves for hanging himself by the neck. Modes of death are chosen of a kind unknown unless in the history of insane suicide: for example, suicide by starvation is not unfrequent among the insane, but scarcely ever attempted, or if attempted, never persevered in from preference by any person of sound mind. I should perhaps except the case of Pomponius Atticus, the friend of Cicero; but it is not unlikely that his painful disorder had affected his mind: at all events, he was in such a condition as to die on the fifth day, and therefore his perseverance was not brought to an extreme trial. Even amongst prisoners condemned to death, the attempt is uncommon, and success in it almost unknown. Amongst the insane it is otherwise. I have myself known of more than one instance. Sometimes, in obedience to a delusion, it is had recourse to from choice, but more frequently it is the last resource of a lunatic thwarted in other modes of self-destruction. The attempt may be combated in many ways, and is usually overcome; but, if the insane resolution fail not—and the insane will is sometimes unconquerable—a certain and a fearful tragedy has begun. The propensity is treated as a disease, but the subject of it resists physic. Leeches are applied to the head, a blister to the neck—something is done to the epigastrium: he is left alone with food—he is tempted with delicacies—he is encouraged to drink—he is promised all things; but he holds out, and emaciates hourly. Food is introduced into the stomach by a tube passed into the œsophagus by the mouth or nostrils: he resists with all his might; and, if successful, attempts to excite himself to vomiting. He is placed under the influence of chloroform perhaps, but becomes only insensible, not compliant: he is violently fed daily, but is evidently gaining the victory. The struggle becomes dangerous by the exhaustion itself induces. Nourishing enemata are resisted and expelled; and some day, when raised up, he suddenly falls back and dies of syncope. In a well-conducted asylum, starvation is almost the only possible mode of suicide. In those sound of mind it is nearly an impossible kind of self-murder.

Medico-legal consideration of suicide.—Suicide is a crime in law—a fact not of a sort to be of necessity presurmised. It is, it seems, the crime of *felo de se*—a phrase of dubious latinity, understood to indicate self-murder. Of the moral guilt there can be no doubt; but there are many unchristian offences of which legislation makes no account, which it would be more rational to recognise, both for the weight of example, and on the principle of punishing: for those who are bent on self-destruction on any other grounds than a hysterical impulse of imitation, are incapacitated to profit by application of the example, and remove themselves from the influence of human inflictions; the worst is already looked upon and encountered; nothing can harm them more. The goods of a felo-de-se—that is, his own personal and movable property—are forfeited to the Crown, and his will in relation to them is invalid. Formerly the body, having been further mangled by being transfixed with a stake, was buried dishonourably under the highway. Having disgraced his body and robbed his children, the law entitled the wife to her dower, and permitted the real estate to descend to his heirs, or fall to any to whom it was bequeathed. Suicide is not evidence of insanity. The mere fact of a testator making away with his life, although immediately after the execution of his will, is not deemed sufficient ground for setting aside the testament, in so far as the crime of his death permits it to be valid. If an individual commits murder, and thereupon attempts self-destruction, this will in no way affect his legal responsibility. Still further, if an individual in attempting suicide injured another, the mere fact of suicidal intention would afford no plea against trial for homicide. Thus, if a person bent on self-destruction turned a loaded pistol to his head, but from nervous agitation, or some other cause, missed his mark, and shot some one behind him, the suicidal aim would not free him from the charge of blood-guiltiness. One attempting death by drowning has been found liable for the accidental death of an individual who jumped into the water to save him.

We shall distinguish three kinds of suicide—viz., self-murder, insane suicide, and suicidal moral insanity.

Self-murder is that voluntary rational suicide which is implied in the technical phraseology of felo de se. Suicide is not always insanity; it occurs under circumstances which do not indicate incapacitated judgment or diseased will. It may be the sinful result, in an unchristian mind, of a vigorous comparison betwixt long-continued mental distress and transient physical pain, betwixt one mode of violent death and another, between present actual wretchedness and a doubtful condition of future existence. It may be evil done that good may come: thus Leonidas volunteered the required loss of Heracleidan blood at Thermopylæ; Marcus Curtius leaped into the chasm; the citizens of Calais offered themselves for the gallows; and the virgin may prefer suicide to certain dishonour. In some countries suicide has been in certain circumstances a religious duty or customary etiquette. The Japanese dignitary rips up his abdomen when disgraced from office; the concubines of the Peruvian Inca sacrificed themselves on his tomb; and the Hindoo widow immolates herself on the funeral fire. Self-murder is, however, I believe, the rarest form of suicide. It is to be presumed to be a sane act, in the absence of contrary evidence, when such motives as the above are clearly traceable; but even then, when it is the deed of remorse or despair, it the result of a condition as uncontrollable by the judgment as a diseased impulse. Suicide, preceded by revengeful murder, following intelligible motives, implies felo de se. The less painful and the more gradual the mode of death selected, the greater would be the presumption of sanity. Death by poison, charcoal vapour, or chloroform, would less indicate a diseased impulse than would pistolling, cutting the throat, or precipitation. The presumption of insanity would also be weakened by the fact of self-destruction being the result of a community of resolution; as when the member of a suicide club, if such a society exist, is no more to be seen, or the crew of a boarded ship blow themselves and the enemy into the air, or the daughters of a Lord Archibald plunge together into the lake. The conjunct suicide of two individuals only, especially of the opposite sex, may, however, be a conjunction of insanity with a diseased intensity of sympathetic emotion.

Insane suicide is the phenomenon of self-destruction occurring amongst those labouring under any of the forms of insanity, as already spoken of, and on which it is unnecessary to dilate. The deed is to be held as resulting from the mental disease in all cases in which it is committed by a lunatic, whether it can be seen to be attributable to the influence of disordered judgment or not; for we can neither trace all the diseased motives which govern the conduct of the insane, nor, as we have already seen, reconcile their actions with the objects which impelled them. There is no rationale in the doings of lunacy.

Suicidal moral insanity.—The cases of self-destruction which we are to consider as belonging to this class differ from what I have termed self-murder in being associated with symptoms of loss of control, and from insane suicide in being uncombined with manifest disease of the understanding. The suicidal propensity is, in some instances, a form of insanity per se, a variety of moral insanity, and unaccompanied by incapacity of judgment; in other cases it only appears to be so, the intellectual disorder being either undisplayed or overlooked. The simplest example of pure suicidal impulse, uncomplicated with disordered judgment,—suicide from loss of control,—is the self-destruction which may be the result of *fascination*,—the feeling whose approach some of you possibly may have experienced in your own person in looking over a precipitous height. The natural—that is to say, the healthy, impulse in such a position would be an excitement of the instinct of self-preservation; the opposed feeling, though perhaps common, is truly anormal, and has, it is probable, a pathological source, and may be allied to that feeling of vertigo which is still more common in such a situation. This last is said to be a sensation developed only in the special circumstance of an immediate tangible connection with the point towards which the eye is directed: it is felt in looking from a precipice, but not from the car of a balloon: and a similar sensation attends looking up the face of a perpendicular cliff, or to the high roof in the interior of a cathedral, but does not interfere with one gazing on the sky. It would be interesting could it be known whether the suicidal impulse is ever developed by looking downward from a balloon. It may be said generally of suicide from suggestive opportunity, that it is a morbid phenomenon. It is the most producible of all the insane impulses. Were a convenient noose to be hung up in the sleeping apartments of a lunatic asylum, doubtless more than those who went to bed suicidally inclined would be found suspended in the morning. It is not so discreditable to the country that the gallery of the Monument was found necessary to be encaged, as that it was not so protected before that necessity was proved. Suicide from *imitation* is another kind of self-destruction consequent on diseased impulse without deranged intellect, although it has been proved capable of being prevented by disgracing the dead body. The Roman senate finding it necessary on one occasion to attempt the check of a suicidal epidemic amongst the females, succeeded by decreeing the exposure of the suicide's body naked in the public highway; and we are told by Dr. Burrows that the practice of suicide at one time, in a British regiment in Malta, was put a stop to by dragging the naked corpse on a hurdle ignominiously before the whole band, and throwing it into the fosse: but these effects are no proof that the impulse was not a diseased one; true self-murder could not be hindered by such means. The morbid impulse is fettered not by the unaided free will of the individual, but by a strong mental impression tending to arouse the will to free action. Insanity, it has been said, may be prevented or controlled by voluntary exertion; but it will neither be the one nor the other without the agency of external stimulation, unless in the earliest steps of its progress, or the stages of its retrogression. The suicidal inclination is frequently a persistent suggestion rather than a sudden impulse; but is in such cases also a pathological symptom. Our natural instincts, even the strongest, may, in obedience to the higher motives that influence the mind, such as a sense of duty and religious obligation, be successfully resisted; but the annihilation of these instincts, and impulses *contra naturam*, are in every instance to be looked upon as morbid. The desire to terminate life is a psychical reflex of physical disease. "It may be laid down as an indisputable axiom," says one who has thought, written, and seen much of this state (Dr. Winslow), "that in every case of this kind, bodily disease may on a careful examination be detected. We never yet saw a case where a desire to commit suicide was present in which there was not corporeal indisposition." In all the foregoing examples of what we have termed suicidal moral insanity the intellect is understood to be sound; but there are others in which this is at least problematical. In many instances, doubtless, the intellectual complication is concealed or overlooked; in others the deed has been the first and last act of the disordered judgment. The attempt at self-destruction is frequently the antecursor of insanity—the main indication of that premonitory moral disorder to which I have alluded.

When is suicide to be considered as the act of insanity?—In answering this question, you are to keep in view that in the word insanity are comprehended the five varieties of the disorder formerly discussed, one of which, moral insanity, is not yet recognised in law. You are to take into account the history of the individual, the mode in which the action was committed, and the condition of the body. Self-destruction ought to be held as insanity when it is the deed of one hereditarily predisposed to mental disease, or to death by suicide, particularly if the predisposition is inherited from the parent of the same sex, as this gives increased force to congenital tendencies. Dr. Gall, Dr. Burrows, and other writers, have given striking examples of suicide occurring in three or four consecutive generations of a family, the result undoubtedly of inherited qualities, and not to be accounted for on the mere ground of suggestive example and vicious imitation. Self-destruction is to be deemed insanity also in all those cases in which the circumstances of the individual were not such as to develope any of these motives to which allusion was made in speaking of self-murder or felo de se; so likewise in every instance in which it is to be ascribed to mere imitation, or to the fascination of suggestive opportunity. The mode of committing the action may itself be indicative of disease. If little could be inferred from the single fact of a person hanging, drowning, poisoning, or pistolling himself, there could certainly be no doubt of the state of mind of one who chose rather to throw himself into a furnace, to starve himself to death, to crucify himself, or to kill himself by cutting off his genitals. I would also hold it as sufficient ground for a similar conclusion where it appeared, as formerly described, that the individual had not so much the desire of self-destruction as that of dying in a particular way; where, for example, he did not seem to wish to kill himself so much as to hang himself. Suicide amounts to proof of insanity when committed by people labouring under certain diseases: as pellagra,—an endemic skin disease in Lombardy, which, according to Professor Tomassini and other Italian physicians, occasions often an irresistible impulse to self-annihilation,—hypochondriasis, paralysis, hysteria, epilepsy, extreme bodily pain, uterine derangement, spermatorrhœa, nostalgia, intoxication, &c., all of which are efficient causes of mental diseases, and many of them states which are either transitional to, or promonitory of, insanity. Any of those pathological appearances which are more peculiarly connected with mental alienation, if found in the body of a suicide, ought to lead us to the inference that the individual laboured under mental disease; and indeed, in the present state of our knowledge, if we can distinctly make out that he suffered from bad health, the violent death should be ascribed to sympathetic cerebral disturbance. In short, suicide is presumptive of insanity, and ought to be held probative in every case in which the recognised causes of *self-murder* were not clearly present.

Self-murder is the rarest form of suicide; and doubtless many cases of supposed felo de se are examples of obedience to some morbid impulse; all other suicides are probative of unsoundness of mind. Juries have been often twitted with the commonness of the verdict of "temporary insanity" in cases of self-destruction; but they are in the main right in their conduct and dealing with the matter in the spirit that is most philosophical. The practice of the law is, on the other hand, chargeable with being harsh and unenlightened. The attempt "to put down suicide," unless in the way of preventing its causes, is absurd in the extreme, when the deed is not the consequence of epidemic imitation; for the act is an unnatural one beyond legislation. The man bent upon death, whom social affections, conservative instinct, and religious principle do not sway, is beyond the influence of example and authority. He has reached an acme of misery not to be rendered more miserable by the prospect of post-obit vengeance, nor to be deterred from its morbid will by legal consequences often but ill understood, and in a multitude of cases impotent and inconsequential; and he appeals his case to a tribunal higher than all the united states of humanity. Legislation should go no further than this: for the protection of heirs (not their robbery), to vitiate the will of a suicide when it is contrary to the legal order of succession; and for the protection of the public, to hold the intention of suicide, when accidently productive of death to others, to be punishable as homicide, unless where insanity can be clearly established, in which case the individual should be confined for life.

The homicidal impulse.—The manifestation of this propensity is much more rare among the insane than the suicidal impulse is. The desire to kill was a feature more or less abiding in about 1 per cent. of the cases treated in the Aberdeen Lunatic Asylum. The insane may commit homicide under the influence of delusion, delirium, imbecility, where there is imperfect appreciation of consequences, or simply as a result of the moral perversion which accompanies the disease. The propensity is rather more common in the insanity of females than of males; it is most usually combined with epileptic mania.

Homicidal moral insanity may be employed as the term to designate those cases in which a morbid impulse to kill is the sole indication of diseased mind. Though much less common, this is a form of mental disorder as veritable as the suicidal moral insanity of which we have spoken; it is admitted by all recent writers, and has been recognised in criminal courts. The propensity has been found combined with the conditions of menstruation, pregnancy, parturition, uterine derangement, gastric disorder, cerebral congestion, epilepsy, and hypertrophy of the heart, and may be persistent, intermittent, or occasional. These conditions are to be looked upon as predisposing physical causes; there may be also predisposing moral causes at work,—as, for example, grief and despondency; but the deed flows immediately from some mental impression by a morbid action so powerfully exciting the homicidal idea, as to give it an instinctive force, leading to an action which is irresistible,—independent of the will. The deed may be the result of imitation, the idea induced by murderous narratives, or suggested by the sight of lethal weapons, or by the exposed and defenceless condition of the victim. When the psycho-physical relation is once disturbed, whether by the influence of corporeal or of mental agencies depressing the vitality, and the predisposition to diseased manifestations thus induced, ordinary influences become exciting causes of extraordinary conduct. I have already said that mental impressions, often of a common kind, are the originators of delusion (incapacitated judgment); so are they also of irresistible impulses (incapacitated will). In the former case, extravagant conduct results mediately from the delusion excited; in the latter, it results immediately from the mental impression, which, being an emotional one, manifests itself in action without any intervention of intellectual disorder. The homicidal impulses, and the insane impulses in geneal, constitute, therefore, the simplest and most completely objective form of madness. Reil adopts he same view. He considers them to be forms of mania, and to be mania without any extraneous addition. He appears, in the following description of the paroxysm, to assimilate its phenomena to those of epilepsy. "The paroxysm," says he (I read from Feuchtersleben's Psychology), "generally begins with all kinds of corporeal phenomena: a pressure exists at the pit of the stomach; shuddering through the whole body (often commencing at the spine); the tongue is loaded; there is a sensation of burning heat in the bowels; great thirst and constipation; the heat rises upwards to the chest, neck and head; this last aches; there is a singing and buzzing in the ears; the look becomes anxious; the patient says that the heat rises before his eyes; he often warns those about him, and entreats to be prevented from doing mischief; the countenance becomes flushed; the arteries of the neck and temples throb violently: at length the excitement extends to the brain; and at this moment arises the blind irresistible impulse to murder, commit suicide, theft, arson, or some other outrageous act; just as epilepsy ensues when its preliminary *aura* has reached the brain. These somatic (corporeal) symptoms are, however, often wanting. The disease is permanent, though mostly periodical."*

In homicidal moral insanity there is no discoverable intellectual disorder antecedent or subsequent to the act. Several writers maintain, however, that there is disordered perception or delirium during the time that the deed is done. In such a paroxysm as that vividly described by Reil, one would infer delirium in the climax. Without insisting on this feature in every case, I believe that very frequently the patient may not have a competent knewledge of circumstances at the time.

I shall not take up your time quoting examples of this variety of insanity, leaving it to yourselves to study the many cases which you will find recorded in medico-legal works. I have often seen the homicidal desire as a feature of derangement, but have met with only one or two instances, and these not of a striking kind, in which the impulse itself formed the sole mental disease. In one of these cases the subject was a young woman, of a good and cheerful disposition naturally, who acted as a servant to an invalid lady. Her health got disordered from the nature of the duties which she had to discharge. She lived in the most solitary way, was very rarely indeed out of doors, and had to submit to perpetual night watching, and the constant peevishness and selfish exactions of an invalid. Such were the predisposing causes of the malady. The propensity was engendered by reading to her mistress, night after night, from newspapers, details of those monstrosities of crime which are so usually to be found in their columns. She was at length seized with a morbid desire to strangle her mistress as she lay asleep. The impulse grew stronger and stronger, and feeling that it would become irresistible, she determined to save herself by flight. She left her situation, and, at her earnest solicitation, to be protected from the consequences of her actions, was lodged in an asylum. This patient had not the melancholic temperament which is common in such cases, had no hysterical tendencies, but was robust, of a sanguine habit, cheerful, and well inclined. There was no disorder in the uterine functions; the only distinct symptoms of disease were gastric, accompanied with headache and restlessness at night. When removed to the hospital there was no manifestation of mental affection, save depression of spirits; and when her disordered health was rectified she was discharged, and has ever since kept well.

Homicide from insane impulse differs from murder, in being a diseased act, suddenly committed in blind obedience to an instinctive impulse, or to a desire which has gradually become irresistible. None of the ordinary motives of crime are discoverable: there was no antecedent enmity or quarrel, and there is no resulting advantage. The objects sacrificed are most likely either previously unknown to the patient and accidentally encountered, or they are those, as his wife and children, whom he has always regarded with the deepest affection. The act is one indicative of much mental and physical excitement; it is not slow-poisoning secretly carried out, but a bloody deed savagely done; there is probably not one wound, but many; not one ghastly corpse, but several. When the slaughter has satiated the desire, there is either terror and flight, grief and confession, or remorse and suicide; but as frequently no relief seems to follow the indulged impulse; in which case there is neither attempted concealment, surrender to justice, denial, nor remorse. There will often be evident physical disease, with indications of moral insanity, or perhaps even of approaching or overlooked intellectual disorder. None of the circumstances of the action necessarily indicate insanity; the most characteristic of them are of occasional occurrence in criminal homicide. The absence of all motive is presumptive, but is with difficulty distinguished from concealment of motive; and the dependence of the impulse on disease, with its independence of the will, may be indicated in the history of the homicide and his crime, but cannot be indubitably proved.

When ought homicide to be considered as the act of insanity?—In speaking of self-destruction, I stated that the act by itself is to be held as presumptive of insanity; but in regard to homicide the presumption is much more on the side of crime than of disease; the former runs contrary to natural instincts, whereas the latter results from normal impulses which the divine commandment indicates have to be restrained. Every one has the capacity to kill in self-defence; but there are many whom the instinct of self-preservation would, in all circumstances, keep from self-destruction. Homicide is not to be held as a criminal action when it is committed by one labouring under any form of delirium, the consequence of disease, or naturally of such an imbecile condition as to have an imperfect knowledge of right and wrong, and an imperfect appreciation of consequences. It ought to be considered as an act of insanity when it flows directly from a delusion which overrides the judgment and directs the conduct; indeed, in every case in which insane delusions exist, the presumption is strong that the deed is an act of insanity, whether it can be directly traced to the impulse of delusion or not; for, as already insisted upon, the consequences of a delusion are not to be foreseen. When outrageous or extravagant conduct co-exists with delusion, they are probably connected with each other, although the relation may not be apparent. Homicide, without any of the usual motives of murder, ought to be esteemed an act of insanity when it is followed by evident derangement of mind; for the deed has, in such a case, it is to be presumed, been the consequence of the moral perversion, which you are aware is so often the initial symptom of lunacy. In cases in which no intellectual derangement is obvious, the action is still to be attributed to insanity when it appears to have been motiveless, the manifestation of a blind irresistible impulse, inconsistent with the natural tendencies of the individual, and indicating in its circumstances the temporary existence of delirious loss of control; when it is also the act of an individual labouring under some of those diseased states which are frequently associated with insanity, as cause, complication, or consequence,—who has a hereditary predisposition to disease of the mind, or who has at some former period actually been afflicted with the malady.

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* In a case of insane impulse (suicidal and homicidal) which I lately saw with Dr. Christie, of Aberdeen, the existence of our aura as described by Reil was well marked. The strange feeling, described by the patient as a "heat," began in the lower extremities, progressing gradually upwards to the head. The impulse was not manifested merely when the paroxysm reached its height, but commenced at the same time with the aura, which produced an intense feeling of restlessness and wretchedness when at its climax.

General description of the insane state (concluded)—(c) Insane impulses (concluded)—(3) The impulse to steal—a symptom in insanity—sometimes a form of insanity—Kleptomania—distinguished from criminal theft—(4) The impulse to burn—sometimes a form of diseased mind—Pyromania—its characteristics—(5) The impulse to intoxication—medico-legal consideration of drunkenness—legal relations of drunkenness—modifications in practice—the propensity to intoxication sometimes a disease—Dipsomania—legislation on the subject of drunkenness—(6) Morbid sexual impulse—Cytheromania—(7) Unnatural impulses—(d) Physical condition of lunatics—physiognomy of the insane—the insane expression—the eye—the mouth—the ear—the complexion—the bodily physiognomy—automatic movements, &c.—odour—muscular power and endurance—insensibility to discomfort—pulse—Post-mortem appearances—Feigned insanity.

ANOTHER impulse originating from disease, which is of frequent occurrence among the insane, is the *impulse to steal*. I have frequently known it to be one of the earliest symptoms of insanity.

A medical student, a quiet orderly fellow, suddenly took to drinking porter and stealing books, making no particular attempt to conceal either the one propensity or the other, but just as he was becoming an object of interest to the fiscal, a paroxysm of mania broke forth in full force, and the lunatic asylum was made his prison. Unmeaning theft is a common enough symptom in mania.

A poor country labourer, much deformed in his person by rheumatism and hard labour in peat mosses, and of a reserved and dispirited cast of disposition, became afflicted with mania, in which was manifested neither delusion nor incoherence; indeed, there could be said to be no indications of intellectual disorder unless a more rapid flow of ideas than was natural to him; the sole symptoms, in addition to physical disturbance, were unnatural cheerfulness, excessive talkativeness, Munchausen-like lies, and a most remarkable propensity to thieve. It did not matter what he came across; if it was small, it was pocketed; if it was eatable, it was swallowed. When he washed himself in the morning, he generally managed to finish the operation by pocketing the soap and hiding the towel. If a patient fell asleep in the airing yard or at the fireside, he was on the watch for an opportunity to plunder him. If a pair of stockings was amissing he was sure to be found with two pairs on his legs.

The propensity to steal sometimes occurs as a disease uncombined with intellectual derangement, or with unnatural excitement, as in the above case; it then forms a variety of moral insanity, and has been written of under the name of *kleptomania*. Some have sneered at this disease, but the fact of its being at times a premonitory indication and a phenomenon in maniacal delirium, forms an argument for its probable occurrence as a morbid impulse. The propensity to acquire being a natural one, constantly stimulated by the temptation of opportunity, controllable and requiring to be controlled, and the punishment of theft not being like that of homicide, extreme and irremediable, the proof of disease ought to be very clear before such a plea is allowed to have weight. Kleptomania may be presumed when the theft is the act of an individual not of a vicious character, not impelled apparently by the ordinary motives of the crime, who has hereditary predisposition to mental disease, who has formerly been insane, whose natural disposition has suddenly or gradually become changed by fever, nervous disease, injuries of the head, and by such conditions as pregnancy, or disordered menstruation, or who manifests other traces of disordered mind immediately subsequent to the act. The circumstances of the theft must also be taken into account along with the character and history of the offender. The impulse should be motiveless and irresistible. The plea will be strengthened if the articles are heterogeous, of less trifling value than there was oppornity to seize, appropriated without ingenuity or tempted concealment, unsuited to the wants, e condition, the tastes, the sex, of the individual, not sought to be turned to any account, nheeded after they are possessed, and not missed hen returned to their owners. Lavater tells of physician with this affection, who daily robbed is patients of such articles as spoons, scissors, eys, and work-table gear; he never made any se of these things, nor seemed to miss them, hough they were daily returned by his wife. A raze may be apparent in the nature of the articles collected: for example, an agent of the government at Vienna, we are informed by Dr. Gall, had a mania for kitchen utensils; he stole nothing else but only pots and pans, which he stowed away in a couple of rooms hired to hold the collection, and there they remained unused and unsold. I have heard of kleptomaniacs, but have never met with any in whom the mental faculties were not clearly deranged.

The next diseased impulse to which it is necessary to allude, is the *incendiary impulse*. The propensity to burn is not amongst lunatics a mischievous bent remarkably more common than other forms of destructiveness, and would not require special attention, were it not that there are grounds for believing that such an impulse may be a result of mental disease, when there is no evidence of disturbed understanding. I have occasionally known incendiary acts to be performed by the insane; the nearest approach to simple morbid impulse was in the case of a supposed criminal, in whom the fire-raising, which led to the apprehension of the individual, proved to be a forewarning of insanity. The incendiary impulse, as a variety of moral insanity, is usually termed *pyromania*, and is a disease recognized by all the best authorities in medical psychology. According to Esquirol, there are facts sufficient to prove, that certain incendiaries are moved by an instinctive impulse independent of their will, the burning being the result not of delirium, delusion, nor want of reason, but yet of a diseased motive which may be incontrollable. A German authority, of the name of Henckе, was struck with the frequency of incendiarism by young individuals, and propounded the view, that fire-raising is in many cases to be attributed to the condition of the system at puberty, and is a disease related to the mental disorders and convulsive affections which sometimes make their appearance with the sexual development, more particularly in females. The propensity has been observed in connection with amenorrhœa, imperfect sexual character, natural imbecility of mind, epilepsy, and other nervous disorders allied to insanity. The plea of pyromania has been admitted by juries in this and other countries. For examples, I refer you to the later writers on insanity and forensic medicine. In such cases the act is motiveless, probably repeated without caution or self-protection, on various dissimilar occasions, by an individual about the age of puberty, who has a known tendency to mental disease, who is subject to some convulsive disorder, or who in most cases is of the female sex, and labours under some disease or disturbance of function in the sexual system.

The *impulse to intoxication* is often a very prominent feature in the moral disease of lunatics. Drunkenness may be a cause, a forewarning, a complication, or a consequence, of diseased mind. Insanity is a disorder in which there is an unusual craving for stimulants of all kinds.

Medico-legal consideration of drunkenness.—The state of intoxication is not an exculpatory plea in law, nor does it constitute such a state of unsoundness of mind as to invalidate civil acts. Though it must be admitted to signify a condition in which emotion is perverted, and reason and judgment not sanely exercised, still, as it is a form of unsoundness voluntarily induced, the individual is held to be responsible for actions committed. A habit of drunkenness does not afford legal grounds for placing a person under restraint or confinement, or for interdicting him from the management of his own affairs. In Scotland, one who from habitual intoxication is liable to be imposed upon and taken advantage of, may, if he choose, inhibit himself, as it is called,—that is to say, he may put himself under trustees or curators, without whose sanction no act of his shall be valid. Any confession which an accused person may unguardedly make when in a state of intoxication may be used as evidence against himself or others, having no less weight than the voluntary disclosures which he may proffer in sober moments. No one is called upon to criminate himself; but voluntary statements, whether sober or drunken, though they may be afterwards denied, cannot be nullified as evidence by any retraction. Such is the general statement of the law; but there appear to be occasional modifications in practice. A distinction is made between partial and complete drunkenness; neither is understood to afford an exculpatory plea for criminal actions, though the latter might be with propriety urged in mitigation of punishment. Extreme intoxication, such as interferes with personal consciousness, has been held to vitiate civil acts; and, no doubt, lesser degrees would be similarly protected if the unexpected result of some accidental and unknown physical condition rendered the individual unusually sensitive to the influence of stimulants; so, also, if the state were apparent to all, and brought about by the contrivance and collusion of evil-intended parties for the special purpose of obtaining an advantage. As the law estimates the degree of culpability more from the intent than the effect of an action, it may often be of importance to plead the state of drunkenness as lessening the presumption of malice.

The propensity to drunkenness as a morbid impulse may manifest itself independent of intellectual disorder; in such a case it constitutes the variety of moral insanity usually referred to under the name of *dipsomania*. The possibility of drunkenness being at times itself a disease, seems indicated by several circumstances. There are pathological relations between intoxication and insanity; the former sometimes passes into the latter, and more frequently still forms a predisposing or exciting cause of mental disease; the latter often unexpectedly developes the propensity to the former; a state of dipsomania suddenly appearing is not unfrequently a leading symptom in the premonitory stage of insanity. Drunkenness is often a consequence of physical organization,—an original sin of the constitution, hereditary, and partaking of the ordinary characters of hereditary disease. It is also sometimes a periodical disorder, and in all respects incompatible with the habits of the unfortunate sufferer during the intervals. Habitual drunkenness has been known to have been induced by alterations of disposition following diseases and accidental injuries of the head. Cerebral irritation from continued or intense mental emotions also occasionally compels to it. The following, with other similar cases, is narrated by Dr. Ray:—A young man, a sailor, was, for his sobriety and good conduct, elevated to the command of a ship; "but," says the writer, "no sooner did he reach this reward of his merits, than he began to drink with all the recklessness of an old toper. As soon as he was degraded to an inferior station, no man could be more temperate; and this appearance of reform each time encouraging his friends with the hope that he had abandoned his bad habits altogether, they would restore him to the station he had lost, to be again and again forfeited by his mad propensity."

The propensity to intoxication, when dipsomaniacal, does not follow temptation or opportunity, is contrary to habit, hereditary, conjoined with predisposition to insanity, follows some special, mental, or physical cause, is sudden, or connected with antecedent change of disposition and character, irresistible, periodical, and solitarily indulged during a lengthened unremittent paroxysm.

Enactments on this subject have varied much in different countries and times. Sometimes drunkenness has been entirely overlooked by legislators; in some cases it has been admitted as a plea in extenuation of crime: it has been punished by fines, imprisonments, and loss of civil status, and even, under special circumstances, by death. At present, in this country, it does not appear to be sufficiently recognized either as a crime or as a disease. Legislation on the matter would be, no doubt, difficult, but not more difficult than important and useful. It would be well for society that the habitual drunkard should, in many cases, be interdicted from the control of his affairs; and it would very much lessen the labours of justiciary lords, were dipsomaniacs allowed to be put under control and restraint, subject to every inspection desirable for the prevention of abuse. Such individuals should be placed beyond the power of falling into criminal acts, or be made liable only to a mitigated punishment for crimes which legislation is careless to prevent.

Disease of the sexual impulse is not uncommon amongst the insane. It may occur as a form of moral insanity, and give rise to medico-legal difficulties. Under this head would be included the nymphomania and satyriasis of nosologists: these and such like might be comprehended, for uniformity's sake, under some such term as *cytheromania*; reserving the term erotomania, which has sometimes been made use of, to represent that species of monomania or of moral insanity in which the sentiment of love is insane.

Lastly might be specified unnatural impulses, which are occasionally combined with insanity of intellect. It is probable that even where this is not the case they may be attributed to disease as often as to brutality. In the words of Dr. Prichard, "they have given rise to a series of phenomena in human actions which have been considered to belong to the province of the moralist, or the enacter of penal chastisement, rather than to that of the medical philosopher. That this opinion has been founded in error," says he, "we are fully convinced; and we doubt not that the time will come when the very names of many offences against decorum now considered as punishable crimes will be erased from the statute-book, and when persons now liable to be sentenced to the pillory or the gallows will be treated as lunatics."

The physical condition of lunatics.—In continuation of the picture of the insane state, and in conclusion of it, I shall now advert to the physical condition of lunatics, directing your attention first to the peculiarities of the lunatic countenance.

The physiognomy of the insane.—Well established facial characteristics of disease are of great diagnostic value, affording pathognomonic indications which no endeavour of the patient can conceal, and which enable those who have profitably studied the expression of disease to come to a fixed and correct conclusion upon a slight examination in instances where one less skilled might, after more laborious proceedings, continue in a state of uncertainty. Physiognomy as a science of character is a most vague and fanciful affair. It assumes, however, a more practical value in states of sickness, in which we do not look on the countenance as an index of disposition, but as an exponent of accidental and morbid psycho-physical sympathies. Expressions of disease, though less instinctively understood, are, when once known, more to be trusted in than expressions of thought or emotion; and when these last are not natural, but morbid, they are, being more involuntary, less calculated to mislead. The knowledge to be acquired from the appearance of the countenance is of greatest value in those temperaments in which there is most reaction between the mind and the body, and in those diseases which are most likely to induce mental anxiety and distress, or to occasion actual sympathetic disorder of the mind. "The study of the physiognomy is more essential in mental derangement," according to Dr. Burrows, "than in almost any disease. It not only guides us in doubtful cases, and instructs is to ascertain a hereditary predisposition to insanity, but also warns us of its approach." It may enable the medical jurist to come to a ready determination in cases of simulated insanity, to distinguish the approach of the disease, the presence of a lucid interval, and the validity of recovery.

What is the peculiarity in the expression of insanity? Painters and others have represented it either as simple exaggeration of emotion, or a jumble of incompatible characters. Sir Charles Bell conceives that it is a brutalized type of expression. Sir Alexander Morison, who has given much attention to the movable physiognomy of the insane, seems to think that it is a combination of wildness, abstraction, or vacancy, with the ordinary expression of the predominating emotion. I believe that Sir Charles Bell's opinion is a correct statement; the expression of insanity is always degraded and repulsive. I refer you to the drawings and casts before you. How inferior is this excited aspect to any natural expression of mirth, self-confidence, or excited expectation! How different this suspicious look of ferocity from the coarsest natural expression of anger! Here is a monomania of pride;—distortion, not dignity, not even a ludicrous, but only an ugly caricature;—here the monomania of fear—the aspect and action of a terrified cur.

The *eye* is in mania an unnaturally brilliant, quick, unsettled, and projecting eye, with usually a contracted pupil. Here is what writers term the "occulus bovinus"—a wide, dilated, and prominent orb, with an exposure of the whole circle of the iris. In melancholy the organ is dull, slow, downcast, and evasive. In dementia it has lost much of its natural brilliancy of expression; the pupil is dilated, the eyes droop, and the supercilia are drawn up on a low wrinkled brow, giving an appearance of stupid amazement. In cases where intemperance has been at work producing the disease, the eyes wear all along the intoxicated expression.

Many characteristic traits are to be observed about the expression of the *mouth*, especially in dementia and imbecility. It would be difficult to convey an accurate idea of them in verbal description: you will remark them in the examples before you. There is a peculiar relaxed expression very characteristic of primary or acute dementia, which contrasts very remarkably with the natural expression of the countenance as represented after recovery.

It is a curious fact, that there is a certain conformation of the external *ear* which is occasionally to be observed amongst the insane. To this my attention was first directed in the Hanwell Asylum by Dr. Conolly; but I believe the observation was originally made by M. Foville, who has also in addition remarked, I understand, some relations between the configuration of certain portions of the organ and the condition of the brain. These may be fanciful; but true it is that changes do take place in the shape of the ear, especially in cases of old standing: the lower portions of the pinna become enlarged, misshapen, and more vascular, while the helix and antehelix seem flattened and defective. These changes would point out some as yet but indifferently understood relationship between the condition of the cerebrum and external ear, which there are some facts to confirm: for instance, we are told by Kirby, in his "Habits and Instincts of Animals," that in the horse the condition of the ear in a certain particular varies with the wildness or tameness of the animal,—with its state of cerebral education in short. In the wild horse the ears lie back; in the domestic or cultivated one they are erect. Every representation of the trained animal, however ancient, as on Grecian and Egyptian sculptures, exhibits it with the ears erect; whereas in the wild horses of Tartary, and those which have run wild on the mountain plains of South America, they are uniformly recumbent.

Finally, as regards the facial appearance of the insane, you will find that in very few instances indeed is the *complexion* of a lunatic unexceptionable In mania, when the disease is recent, the countenance will sometimes bear the appearance of health; but in all other forms of non-congenital mental derangement, and wherever the disorder is of any standing, the skin has either a pale and leuco-phlegmatic hue, or it is sallow, dirty, and badly coloured. A clear condition of the skin you will very seldom observe amongst lunatics. Beauty is what you will fail to discover in a lunatic hospital: the physiognomies are lined by the expression of diseased feelings, which expression is seldom such as to inspire sympathy, and never admiration; the trace of every benevolent emotion is too frequently banished from the countenance, giving place to cunning, suspicion, timidity, outrageous passions, and unworthy propensities.

The *bodily physiognomy* of lunatics, or their carriage, attitude, and gait, is also characteristic, as you will see from some of the graphic representations before you. On this point I shall no farther dilate than to say that the maniac may show, during paroxysms of excitement, more than his natural degree of grace in his frantic movements; the melancholic has an external appearance of slowness, shrinking, and oppression; the monomaniac with a high delusion expresses his ruling passion in a caricature of its natural language; and the positions of the imbecile and demented are usually degraded and debased.

The incurable class of the insane often exhibit a variety of *automatic movements*,—that is to say, certain habitual involuntary or semi-involuntary actions of an unvaried monotonous kind, such as an automaton might be contrived to perform. Such a symptom does not, however, of necessity indicate an incurable form of disease. These convulsive and habitual movements have received the name of *tic* from the French writers on insanity. It would be futile to attempt enumerating them, they are so various. I may mention here a curious action confined to paralytic lunatics—namely, a grinding movement of the teeth against each other, productive of a sound much louder than any you would conceive could be produced in this way. The sound is very loud, and in a room where two or three such patients are congregated together I have heard it absolutely amount to a distressing noise. It is a curious symptom, but speedily put a stop to by death. There is another phenomenon still more singular, occasionally manifested by incurable lunatics, and that is rumination—a symptom which has sometimes, however, been known in dyspeptics not insane.

Insanity is frequently conjoined with a peculiar *odour* of the perspiration and the breath. This fact looks odd, but many other conditions have a connected and peculiar effluvium. There is a peculiar smell which often precedes death, and which is an absolute indication of its approach—a sort of earthy odour prophetic of the churchyard. Gout and rheumatism have also a peculiar fetor; and the disease called the pellagra—a combination of a mental and a skin disease which occurs in Italy—is said to be distinguished by a smell like mouldy bread. The smell of mania is described as being quite *sui generis:* in some books you will find it compared to the scent of hyoscyamus in a state of fermentation. It is not confined to any of the particular forms of mental derangement. "The maniacal odour," says Dr. Burrows, "is not always present; but I consider it a pathognomonic symptom so unerring, that if I detected it in any person I should not hesitate to pronounce him insane, even though I had no other proof of it." Such an opinion from an authority so respectable makes this occasional symptom of mental disorder deserving of notice. A person sensitive in this way will almost always be offended by the breath of lunatic patients. All are agreed as to the insane being liable to be the subjects of a very powerful and disagreeable odour, whether special or accidental. It is remarked by all attendants, by all who have to deal with the repairing and washing of their bedding and clothes. In an old, ill-constructed and badly ventilated asylum, I was once witness to two female attendants having their stomachs fairly upset by it in the morning, as they were engaged in unlocking the doors and opening the shutters of a gallery of sleeping apartments.

Mental alienation is a disorder related to physical debility, yet, during paroxysms of excitement, lunatics often manifest wonderful *muscular power and endurance.* Young and delicate individuals will perform almost incredible feats of strength, and continue for days in a state of unceasing motion and exertion of voice and limb, with perhaps little or no sustenance, continued want of sleep, and in spite of all the means which may be employed to depress their strength and calm the violence of their excitement. It is only, however, during a period of maniacal exaltation that the insane manifest an increase of muscular power: they are ordinarily of less than average vigour. Such an appearance of strength is in a considerable degree fallacious, being in part attributable to diminished or perverted corporeal sensibility. Indeed, when the bodily organs themselves make it clear that they have been exerted far beyond the legitimate extent, the maddened brain will still impel them to obey its destructive mandates. You will see maniacal patients, after they have from unceasing vociferation shouted themselves into a state of inarticulate aphonia, persevering in their vocal attempts till at length they are prevented by fatal exhaustion. Epileptic lunatics have generally an augmented degree of strength during their periods of excitement. Demented patients, unless when epileptic, are usually feeble in body. When melancholics and monomaniacs exhibit much strength and endurance, the exhibition of it is attributable to blunted sensibility. In such a case they may be capable of undergoing great fatigue in obedience to their delusions; but when the will is exerted in a healthy way, in furtherance of any other object, they exhibit not merely a small capacity of attention, but a slight power of exertion and endurance.

The insane frequently manifest much insensibility to external impression, and much endurance of want of sleep, cold, hunger, and discomfort. This is an evidence of anæsthesia, not of strength or robustness. They may actually suffer physically, though they do not express themselves as sensible of suffering; the condition of insane abstraction from surrounding circumstances, and the absorption of attention by delusion, serving to deaden all natural impressions. A knowledge of such particulars is of importance for the discrimination of feigned insanity.

Dr. Rush, we are told, decided upon the insanity of a criminal from the single fact of an excited pulse. Now, as regards the *pulse*, it is not much to be trusted to in determining mental disease. In the insane it may be found varying from 60 to 120. The most common pulse in lunatics is one which is not at all indicative of any state like acute inflammatory action: it is a soft and indistinct pulse, between 80 and 90, and easily quickened.

There are certain peculiarities in the constitution of the blood, urine, and secretions, which possess no little interest, but which we must pass over, as they would lead to a discussion upon the pathology of the disease beyond our province. I shall just briefly enumerate certain of the post-mortem appearances that are frequently found in the bodies of lunatics. These are, altered thickness of the scalp and calvarium; opacity, thickening, and adhesion of the meninges; effusion of serum into the subarachnoid tissue, the sac of the arachnoid, and the cavities of the ventricles; atrophy of the cerebral convolutions; redness or atrophy, and increased density, of the vesicular nervous matter; diseases of the heart, particularly hypertrophy of the left ventricle; diseases of the lungs, particularly phthisis; diseases of the abdominal viscera, and, as a peculiarity, displacement of the colon. No definite relation has been established betwixt these or other morbid changes and special forms of mental disease. They do not constitute the disease, but are allied with it, sometimes as causes, sometimes as consequences, and sometimes as mere accidental complications. The last appearace alluded to is most common in cases of melancholia, and was first taken notice of by Esquirol. He observed that the colon, instead of pursuing its transverse course from the right to the left side of the abdominal cavity, was sometimes suddenly precipitated and tied down behind the pubis, or deflected from its course at the transverse portion in the form of an inverted arch of greater or less extent, at one time being a slight curve, at others a loop so long as to fall into the pelvis. Most of these post-mortem appearances are best marked in old cases. It often happens in recent cases, and occasionally, too, in old cases, that no pathological alterations whatever in the brain can be discovered either by the knife or the microscope. There is no mode of investigating insanity so discouraging as that by post-mortem examinations, and few have persevered very long in the attempt to elucidate its mysteries in this way.

You have now had laid before you a description of all the features which are characteristic of the insane condition—at least, all with which it appears necessary that the medical jurist need be acquainted in order to expose feigned insanity, and to give sound opinions in cases of judicial difficulty.

On the subject of *feigned insanity* I think I may venture to be very brief. I need not lay before you the objects which may lead persons to feign madness: but bear in mind that a person may be suddenly attacked with insanity under some of the ordinary circumstances which tempt persons to feign the disease. For example, the excitement accompanying the commission of a criminal deed, the remorse which may follow its execution, or the shame of discovery, might occasion a real attack of madness liable to be canvassed and dealt with as a feigned lunacy, owing to the suspicious circumstances in which it had been developed. All forms of insanity are difficult to be feigned, and easy to be detected when attempted to be simulated. The general rules for the detection of feigned disease are applicable to the detection of insanity. I need not take up your time describing how the imposition of imbecility, maniacal excitement, fixed delusion, or morbid impulse, is to be exposed. The history of the individual, his character, the history of his crime, the aspect of his symptoms, are all available. Every circumstance mentioned in describing the lunatic condition has a practical application to the discrimination of feigned insanity. The true lunatic has peculiarities of physiognomy, attitude, action, and appearance: he has certain distinguishable and broadly marked emotional and intellectual symptoms, which would require to be long and perseveringly studied to be successfully imitated by even the most accomplished actor, and there are pathological features of madness which cannot be assumed. I do not think that there are many diseases whose subjective symptoms it would be more difficult to feign. In most instances, a feigned lunacy would be at once suspected, even by the inexperienced, and in every instance distinguished by those well acquainted with the characteristics of the disorder. Those who do not know insanity from having personally observed it seem to conceive it badly. Dramatists and writers of fiction, excellent depictors of natural character, have not in general been very successful in their delineations of insanity.

When is mental aberration such as to justify its being deemed insanity? Discrimination of acute and maniacal delirium—Directions for the examination of the Insane—special difficulties—Lunacy certificates—Scottish Lunacy Law, Asylums, and form of certificate—Proceedings under the English Lunacy Act—form of certificate—When is mental unsoundness such as to justify interdiction? interdiction defined—Scottish and English mode of procedure—grounds of interdiction—Testamentary capacity of the Insane.

You have now in the course we have followed seen the condition called Insanity compared with the similar and allied states which most resemble it; we have reviewed the legal doctrines and practice in regard to it—its nosological divisions with their leading characteristics; we have glanced at some particulars in its statistics, and dwelt at length on the physical, emotional, intellectual, and impulsive features of the disease, embracing with various other matters of forensic application, the medico-legal specialities of suicide, homicide, theft, fire-raising, drunkenness, and feigned insanity; let me request your attention farther to the discussion of certain judicial questions connected with the subject, and to various matters that are best considered in relation to these.

When is mental aberration such as to justify its being deemed insanity?—Although it may have an essential character, insanity is not one uniform manifestation of psychical or physical inefficiency. Sometimes it is intellectual defect (imbecility, amentia,) sometimes intellectual disorder (delirium, mania,) sometimes destruction or loss of faculties (dementia,) sometimes permanent but particular incapacity of judgment (delusion—monomania,) and lastly, it may be merely diseased passion and loss of control (moral insanity.) It has therefore to be distinguished from intellectual dullness and ignorance, from febrile and temporary sympathetic delirium, from illusion and hallucination, from eccentricity and depravity. It is often associated with physical disorders, and on this ground bears a resemblance to all diseases which have sympathetic mental disturbance combined with them, some of which, as for example hysteria and hypochondriasis, are transitional to insanity, and not very readily to be distinguished from it. Intellectual deficiency is not insanity, unless it be the consequence of congenital defect of the faculties natural to humanity (amentia,) or destruction of them by cerebral disease (dementia;) the individual must through his whole life have been under the mental capacity of his fellows, or display deficiencies which are unnatural to his former self. Excitement, delirium, incoherence, are insanity (mania—dementia) only when persistent, associated with delusion, and concurrent with physical disorder. Illusion and hallucination indicate the insane condition (mania—monomania,) when they cannot, as formerly described, be made subservient to the operation of comparison, when they defy the judgment, and govern the conduct despite of reason and free will. Exalted passion, erratic propensities, and tyrannous impulses, cannot be deemed mental disease (moral insanity,) unless they be foreign to the character of humanity, or to the natural disposition of the individual, and the apparent consequences of diseased incapacity of self-control. I shall not recapitulate, however, what I have already said of these matters, but restrict myself to the marks which distinguish acute from maniacal delirium. I have repeatedly known the latter to be mistaken for the former.

In febrile delirium the ravings of the patient are less rapid, less intelligible, less distinctly enunciated, and less related to surrounding circumstances. The mental symptoms have not been the first to attract attention, and they are not the most urgent; there is serious bodily disorder, great disturbance of the circulation, a high temperature, evidence of uneasiness and pain,—probably tremor, feebleness of body, and loss of appetite,—symptoms very unusual in maniacal delirium, in which, on the contrary, at the period of greatest excitement, you find the patient perfectly fit to be out of bed, complaining of no pain, seeming to feel no uneasiness, and manifesting perhaps little thought of food, but neither irritability of the stomach nor loss of appetite. Maniacal delirium partakes more of the idiopathic character, continues an indefinite time, persists after the removal of its supposed causes or associated physical symptoms, and rarely occurs before the age of puberty. Taking the history of the attack into account, you will not confound febrile or acute delirium with mania, if you satisfy yourself of its sympathetic origin, the great involution of all the powers of the mind, and the evident derangement of the physical as well as the mental functions of the nervous system. Delirium is the superaddition of a mental to a corporeal disorder. The best diagnostics are physical:—psychically the two conditions are much the same. The voluntary control over thought is lost in both, but voluntary motion is, so to speak, *plus* in mania, *minus* in delirium. Emotion is more perverted in the one, more obscured in the other. Perception and conception are confounded in both. In maniacal dolirium there is a greater capacity of memory (the retention of impressions,) and after recovery, accordingly, a greater power of recollection; a fact not available as a diagnostic, but very useful to be kept in remembrance by those who come in contact with the insane. A person after his recovery from maniacal delirium recollects all or most of the circumstances of his illness, the wanderings of his imagination, the absurdity of his actions, and the treatment to which he was subjected; whereas, he who has been suffering from febrile delirium finds that memory has been through much of the time incapacitated; something he may recollect vividly, something indifferently, but he has an incorrect notion of the time which has elapsed, and much of his illness is a blank in his mind.

Delirium being a state of unsoundness of mind in the fullest sense, is a condition which for the time annuls civil and criminal responsibility.

The Examination of Lunatics.—The testimony given by a medical man regarding the state of mind of one who is suspected to be insane, must be derived from a personal examination. Before the interview you should take care to be furnished with a full and particular history of the case, comprehending the age, social relations, profession, and physical character of the individual; the existence or not of hereditary predisposition, or of a previous insanity, his natural cast of mind, habits, acquirements, and character; his state of bodily health, the date of the appearance of derangement, and the presumed causes of the malady; the first indications of disturbance, the order and succession of symptoms bodily and mental, the difference between his present and his former habits and character, the type of the emotional disorder manifested, and the delusions, if any, by which his conduct is governed; the actions which are most characteristic of his insanity, and the mode by which he is likely or has been prepared to understand the nature of your visit. A complete history as above will save you much trouble, and possibly the lunatic much unnecessary questioning and irritation: and in some instances be of value in estimating the worth of the opinions and observations of relatives, in cases in which corroborative evidence is desirable.

Your introduction to the lunatic should be managed in such a way as to lead him to form no prejudice against you. As a general rule it may be well that he should not suspect your object, but there will be cases undoubtedly in which it would not be improper that he should know the intention of the visit: at all events it is desirable that you should not be an object of his ill-will. In the latter case, in which he is aware that his sanity is canvassed, you should feel, and he should be led to understand this, that soundness of mind is the judgment which you are anxious to have the grounds of forming. You should conduct yourself towards him, so far as the circumstances of his case permit, exactly as you would towards one sound in mind. In all cases where it is possible and proper, your interview with him should be private, without the presence of even his nearest or most interested relative. You should not exhibit timidity, nor hide the feeling under a blustering manner; rather have the presence of some one to protect you. You are to be sympathizing, not patronizing. You are to treat him as an invalid, and not as a child, or an inferior in intellect. I am in these directions presuming that the case is one of some doubt and difficulty, and not, as is more usual, one in which the examination is chiefly a formal necessity, and requiring little tact and discrimination.

You may perhaps be able to discover pathognomonic symptoms of mental disease in the aspect and behaviour of the person, to lead you to be satisfied of his condition before he opens his mouth, more especially if he is not an entire stranger to you; but however high you may rate your power of discrimination in this way, you are never to venture a certificate solely on such grounds; you may be misled by simulation, extreme and unwonted although natural emotion, a state of excitement from intoxication, depression from physical diseases or the influence of drugs and remedies, and the physiognomy of other diseases, as for example, epilepsy, and hysterical or other nervous affections; besides, the grounds of your opinion should be such as others can comprehend and rightly appreciate. Neither are you to be guided solely by the authority and statements of others; these may direct you in your investigation, and confirm you in your conclusions, and may be cited as forming partly the foundation of your opinion, but you are always to satisfy your judgment by your own observations and examinations.

In most cases, as you are introduced to the individual who has to be examined in your character as a physician employed by his friends who are anxious respecting his bodily condition, you will find it generally most suitable to commence with an investigation of physical symptoms. Notice the conformation of the head, the expression of the countenance; ascertain the condition of the pulse, the state of the digestive function, the feelings in the head, the temperature of the scalp, the disposition in regard to sleep. Encourage him to represent his symptoms of ill health himself, the notions which he attaches to them, and the causes to which he supposes they are owing. These will frequently be obviously of an insane kind. In some cases the physical examination will afford nearly conclusive evidence, independent of the patient's own exposition of his maladies; there may be a pathognomonic countenance—shall we say also, in deference to Dr. Burrows, a pathognomonic odour not requiring to be substantiated? There may be evidence of physical ailment implying mental disorder. Had it been suitable to the objects of this class to speak of the diseases of lunatics, I should have alluded very expressly to a peculiar sort of paralysis, which even in its slight beginnings scarcely ever, or if I speak from my own experience never, exists but in combination with diseased minds. I allude to the paralysis of the insane, which you will find described in all the later writers on mental pathology, and most graphically pourtrayed in the Croonian Lectures of 1849, by Dr. Conolly.

Your investigation of the mental disorder should consist in a search for those characteristics of unsoundness which have been described. You are to seek for such changes of moral character as nothing but disease can explain; for such instances of imbecility, incoherence, and delusion, as attest imperfect mental power, disordered understanding, and incapacitated judgment, and for instances of conduct incompatible with a healthy faculty of self-control. If the patient labour under acute mania or chronic delirium you will meet with no difficulty, he will save you all necessity of searching, and furnish in a single interview more proofs of insanity than the memory can retain. If imbecility is the type of the disease, you are to look for its indications in the physiognomy, habits, tastes, and general conduct; in the powers of attention, efforts of judgment, and capacity of dealing with thoughts. You must take the education and the means of acquiring information into account: shrewd examiners have before now mistaken ignorance for imbecility. A person may be more sound in mind than Malvolio was, without knowing what opinion Pythagoras held concerning wild-fowl. If some governing delusion is sought to be exposed, you may perhaps find occasion for all your acumen; for as you are aware, monomaniacs, if their easily awakened suspiciousness be once aroused, occasionally exert no slight power of cunning and secretiveness. You must, in the first place, do all you can to obtain his confidence; if once you succeed in getting him to converse freely with you, he will gradually become communicative, and come nearer and nearer to the delusion engrossing his mind. If he should fail to do so, try to make some of his singularities and eccentricities a subject of discussion, express an interest in them, and seek for an explanation of them. If he should still fail to expose his ruling delusion, you should, from possessing the necessary key, take a judicious opportunity of introducing the subject yourself, and question him of his belief regarding it. Few monomaniacs are proof against this, however much they may wish to conceal their insane notion. I have never known one directly and persistently to repudiate his delusion; he tries, but does not succeed. When pushed to the point he displays his morbid fancy, or he manifests confusion of thought and incoherence of language in relation to it, or he expresses himself mysteriously and with reserve, or he gets angry, declines to speak on that matter, or sullenly remains silent,—a great effort to him. In all cases advantage should be taken of a lunatic's willingness to write, for even when no characteristics of insanity have been observed in his conversation, you will frequently in his letter or statement find traces of delusion, incoherence, or emotional aberration. By sympathizing with the patient you will usually succeed much better than by the most ingenious attempts to compel a display of his delusion; but sometimes, when other expedients have been unsuccessful, it may be advantageous to accuse him, so to speak, of delusion and insanity, so as to lead him to an explanation and defence of conduct which appears extravagant and irrational. Do not be over-desirous to elicit the fact of insanity according to some pre-conceived plan which you have laid down for the purpose. Allow the lunatic to take his own way of exposing his state of mind; the more the interview assumes the form of monologue on his part, and the nearer his discourse approaches to the form of soliloquy, the better.

Time will not permit me to allude to the special difficulties that may occur in the examination of lunatics. Here is a common one. You are required to give an opinion on the state of mind of one of whom you know nothing, of whom you can be told little or nothing; that preliminary history is wanting which I have said is of so much convenience. The individual has possibly been found vagabondizing, and has been laid hold of by the authorities for some slight offence. There is some reason to think that he was once under confinement as a lunatic, and on this account you are requested to investigate his case in a police cell or the ward of a prison. He is reserved and sullen, replies curtly to questions, but manifests no delusion. You can make little out of him, save that his disposition is by no means engaging, or his intellect very brilliant. In such a case you must endeavour to accumulate some knowledge of him; have him watched and conversed with, and from time to time secretly observed. If you find that he mostly occupies one place and position, that though sullen and dejected he occasionally smiles by himself, avoids his food, that at night he sleeps badly, talks and laughs to himself, stands on the floor, or wanders about his apartment, you have ample grounds for suspecting that he is the subject of some morbid delusion; but as you possess no hint of it, you may have difficulty in getting it evolved. You cannot sound his opinions on all matters of sensation and speculation, but you may chance to jangle the loose string by a judicious venture. I have had occasion to notice, as being more potent than ordinary in conjuring forth a delusion in such cases, questions relative to kindred, bodily health, sexual ideas, poisoning, unseen agency, and nocturnal feelings. There is much room for the exercise of tact, ingenuity, and sagacity, in these cases.

I have known an examiner annoyed and nonplused by the persistent and absolute silence of the person under examination. This conduct may arise from idiocy, insane abstraction, and peculiar delusion, in which instances insanity will be well marked in the aspect and behaviour of the patient. It sometimes is the consequence of mere obstinacy, or of a determination to thwart all attempts at investigation, but in every case it forms, in combination with the testimony presented, a good ground for the belief of the existence of an unsound mind.

The forms of imbecility of mind and moral insanity are perhaps the most difficult of all to investigate satisfactorily; but as we have yet to consider the subjects of civil and criminal responsibility, I shall at present delay no longer on the examination of the insane.

Lunacy Certificates.—The ordinary purpose of the examination of lunatics is to certify, that the condition of the mind is such as to require interference with the patient's liberty for the sake of fitting treatment, his personal safety, and the protection of the community. In Scotland, before an individual can be sent to a lunatic asylum, the fact of mental derangement, together with the necessity of confining the patient, must be certified by an authorized practitioner in medicine. The certificate must be given "upon soul and conscience," and all who are concerned in lodging one who is sound of mind in an asylum, or in compressing the confinement of an insane person in an irregular way, are liable to heavy penalties. Upon such a certificate the nearest relation or recognized guardian of the patient petitions the sheriff of the county to grant a warrant for removing him to a licensed lunatic house. While under confinement he is seen at will by the sheriff or his deputy, accompanied usually by a medical assistant and the procurator fiscal of the district, and he has the power of ordering the liberation of the patient whenever he may deem it unjustly delayed. The minister of the parish has also a right to visit the lunatic asylum, but no power in the way of supervision or inspection. The machinery is therefore simple, economical, and as regards the protection of those under restraint in licensed asylums, not to be charged with being ineffective; but the Scottish lunacy law is very far from being perfect, although from the successful resistance which all the recent attempts at improving it have met, it might be deemed a much more faultless institution than it actually is. Lunatics that are not paupers may be kept anywhere, and treated in any way, by any one. The public hospitals are public in a limited sense, and neither freely available for educational purposes to the profession, nor even for the care and treatment of all classes of the insane. I have known instances of disagreeable or difficult cases being rejected, and a lunatic who has committed a criminal action, and whose safe custody has become a matter of much consequence to the community, is by most of these misnamed public asylums unhesitatingly refused. They are not subjected to adequate government control, but are liable to be under the management of a body of self-elected, irresponsible, ill-chosen directors, nearly as numerous as the inmates. In some cases the hospital is but an appendage to some other institution, instead of being separate and independent, having no governing authority but that connected with the parent establishment, and therefore subject to be ruled as if it were a prison, an infirmary, or a poor's-house. Patients of various grades are admitted into houses, which in some instances have been originally designed for and are chiefly occupied by insane poor, and are even sometimes rather heterogeneously mixed. It is this proportion of private patients, however small, that constitutes the barrier to the admission of students for the purposes of instruction. The attempt is constantly being made to ape the style of a private asylum, and to increase the number of the better class, to the injury of the full efficiency of the hospital as a public institution, and to the prevention, of the establishment of such admirable houses for the better rank of lunatics as are common enough throughout England, but almost unknown in this part of the island.

There is an uncertainty about legal details in reference to lunacy matters in Scotland, which it is desirable should be amended. There is a want of uniformity in the constitution, charges, and arrangements of the hospitals, and if I am not mistaken, in regard to modes of procedure and the forms of warrants and certificates, much is left to the discretionary power of local officials.

The following may be received as an adequate form of a lunacy certificate in Scotland.

(Place and date—the latter in words.) I, A. B., M.D. (or surgeon,) hereby certify on Soul and Conscience, that I have this day visited and examined C. D., at present residing at ———, and am of opinion that the said C. D. is in such a state of mental derangement as to require confinement in a lunatic asylum.

(Signed) A. B., M.D. (or surgeon.)

In England there must be two medical certificates, unless in the case of a pauper lunatic, when the testimony of one medical examiner is sufficient. These certificates must be signed by individuals not partners together, not relatives of the patient, and having no professional connection with, or other interest in the asylum to which the patient is to be consigned. These examiners have to investigate the case not together, but separately, and must each in his certificate mention the facts upon which his opinion is founded. These documents must be accompanied by a printed order, filled up and signed by the relative or guardian who authorizes the patient's detention as a lunatic. When the lunatic has been received into the hospital he has to be examined anew, and reported upon to the Board of Commissioners in Lunacy. The most important difference betwixt a Scottish and an English lunacy certificate, is the specification of some of the facts on which the opinion is based, in the case of every lunatic not a pauper, a thing which seems to derogate from the professional character of the document. To give a certificate means, to render a fact sure by the testimony of adequate knowledge; the *ex cathedra* deliverance is by this mode, however, converted into the mere expression of a proposition, and the opinion propounded is not so much a judgment as a condescendence or submission of professional or presumed adequate knowledge to some other, which if surer ought to be at once applied. The medical examiner would appear not to say—this is lunacy; but—is not this lunacy? a function which might be quite as well, and rather more fittingly, discharged by others than "a physician, or surgeon, or apothecary, duly authorized to practise as such." Much latitude is allowed in regard to the statement of facts: these may be any characteristic symptoms of lunacy, as incoherence in conversation, ungoverned excitement, special delusion, noisy or indecent conduct, alteration of the natural physiognomy, or even facts which have not been observed by the examiner himself, but have been merely represented to him by others, provided this circumstance in regard to them be stated in the certificate. The following is an example of the form adopted.

I, A. B. being a physician (surgeon or apothecary,) duly authorized to practise as such, hereby certify that I have this day, separately from any other medical practitioner, visited and personally examined C. D., the person named in the accompanying statement and order, and that the said C. D. is a lunatic, and a proper person to be confined, and that I have formed this opinion from the following facts, the latter being from information derived from his relatives; viz., that he labours under a great despondency of mind, the result of the delusion that he is the victim of a widely extended conspiracy to injure him, and that he manifests a propensity to self-destruction.

Signed A. B.,
(Residence.)

(Date in words.)

In Scotland, where no grounds are required to be assigned for the opinion given that one is insane, and where the community has not the protective supervision of lunacy commissioners, it would be well either that instruction in medical pathology were made a necessary branch of medical education, or that the privilege of granting lunacy certificates should be restricted to those who could declare that they had had the means of studying the disease clinically in some hospital for insanity.

When is mental unsoundness such as to justify interdiction?—Interdiction is defined by Erskine, as a legal restraint upon those who, either through profuseness, or extreme facility of temper, are too easily induced to make hurtful conveyances, by which they are disabled from signing any deed to their prejudice without the consent of curators, who are called interdictors, and who are the nearest male relatives on the father's side, if they be of lawful age and otherwise capacitated.

When a lunatic is interdicted he is no longer free to contract agreements, execute legal deeds, or conduct his own affairs. In England, the individual having been certified to be insane by qualified medical examiners, the Court of Chancery is petitioned on this ground to appoint a special commission, to determine whether he be *compos* or *non compos mentis*. This is termed appointing a commission *de lunatico inquirendo*. This commission examines the evidence pro and con, and gives verdict accordingly. In Scotland, the lunacy certificate having been obtained, application is made to Chancery for what is termed a Brieve of Idiotcy, or a Brieve of Furiosity, (according as the person is held to be either fatuous or raving mad.) This document is addressed to the judge-ordinary of the district (the sheriff,) and instructs him to summon a jury to determine upon the individual's state of mind, and upon the male relative to be appointed interdictor. The proceedings are instituted by the nearest male relative of proper age, and with the knowledge of the person whose state of mind is the subject of doubt, and are termed "a cognition," or "cognoscing a lunatic." The lunatic must be personally examined by the jury previous to their verdict.

Interdiction is justifiable and necessary in all cases of mania, dementia, and amentia. Cases of difficulty arise in the lesser degrees of insanity, as the earlier stage of mania, the person being not raving mad, but only in a state of more than natural excitement; cases of imbecility, the person being not idiotic, but simply of weak mind, and many instances of monomania. In moral insanity interdiction is presumed to be unnecessary.

In cases of asserted imbecility, take care not to mistake ignorance, from want of education and opportunities of information, for mental defect; in cases of excitement and delusion, be satisfied that the former really interferes with voluntary control, and that the latter is not merely of a speculative and harmless charcter, but is practically exhibited in insane and ruinous conduct. The mode of investigation must vary with each particular case. In imbecility you will question the individual on matters which he has had sufficient education and opportunity to know, comparing his intellect with one cultivated in a similar degree, and if the imbecility be adventitious, the present condition of his understanding with what you can learn of its previous capacity. Test his faculty of memory, his powers of notation, his capacity of being instructed, his knowledge of money matters, of the condition of his affairs, and of the proceedings in progress. Take his moral character into account; see whether or not he have self-reliance and "a mind of his own," or be so facile as to be capable of being led in any directon by the self-interested and evil-designing. Though the capacity of a monomaniac to manage his own affairs is never increased by his delusion, still he may be perfectly competent to manage them, not in an ordinary way merely, but much better than any one else could do for him. Ascertain how his faculties and emotions are exhibited in writing, his ideas regarding matters of religion, morality, property, money, duties, and obligations. Conduct is a much better test than capacity in such cases. Before you can testify that interdiction is necessitated from delusions, be satisfied that they lead into insane and ruinous courses; that they so engross the mind as to render efforts of attention inefficient when directed to other necessary objects; that they lead to neglect of natural duties; that they occasion apathy, indifference, and neglect of worldly affairs, to the lunatic's own loss, and the injury of those naturally dependent upon him, or legally interested in him; or that they are combined with loss of memory, general mental deficiency, or morbid feelings, which lead him to pervert the application of his worldly means. There might be incapacity in business, without there being as a consequence sufficient grounds for interdiction from the management of affairs; mere incapacity to make money, and thereby a livelihood, owing to diseased mind, would by no means form a sufficient plea, although incapacity of keeping, or spending, or using it rationally, might.

Testamentary capacity of the Insane.—For a valid testament there must exist a disposing mind; that is, a mind not oppressed and governed by delusions, in which the judgment is capable of discerning, the memory not clearly impaired, and the emotions not unnatural. No one labouring under mania, amentia, or dementia, can be deemed to have a disposing mind; but it is presumed that one who is merely imbecile, or labouring under a form of partial insanity, may. Any lunatic may execute a valid testament during a lucid interval of his disease. He is incapable of disposing of his property, if his imbecility of mind is such as to interfere with a right understanding of the act, if his delusion obscures his knowledge of surrounding circumstances, and if he labours under any delusion incompatible with right feelings and rational ideas in regard to the disposal of his property. A lunatic who has been interdicted may yet be capable of making a sufficient will, because he may have enough of capacity for doing this, although he have not the degree of mental strength and activity of intellect requisite for the uncontrolled management of all his affairs. Although of feeble mind, the lunatic's imbecility would not be such as on that score to invalidate his will, if he fully and accurately comprehended the extent and nature of his property, if the dispositions in the deed were not only natural but of his own devising, and if he rightly understood the consequences of the document. Nor although the subject of delusion would the lunatic be incapacitated to execute a will, if the provisions in it were rational, in conformity with previous intention when sane in mind, and independent of the delusion. The character of the deed itself forms usually the best evidence of testamentary capacity. Should a will be written by the patient, without incoherence, irrational, unnatural, or inconsistent provisions, it will be perfectly valid, even although he was at the time undoubtedly unsound in mind, and the inmate of a lunatic asylum. It is not the insanity of the devisor, but the illegality, falsity, or insanity of the deed, that will overthrow it.

Testimonial capacity of Lunatics—Civil responsibility in reference to contracts, marriage, &c.—When does insanity justify coercion?—Cases which do not demand the restraint of an asylum—superintendence always requisite—Lucid intervals—how judged of—Recovery—the marks of recovery—Discharge of Lunatics—liberation and emancipation—Criminal responsibility of the Insane—legal test—consciousness of right and wrong—power of self-control—insufficiency of the legal test—evidence of irresponsibility—how sought to be obtained—Medical opinion—how dealt with in law-courts and by the press—insufficiency of ordinary juries to determine upon insanity—ne-

cessity for an improved mode of procedure—Punishment of the Insane—mitigated penalties—dispunishable conditions—Does Insanity diminish the expectation of life.

Testimonial capacity of Lunatics.—I concluded last lecture with some remarks on the testamentary capacity of the insane, and shall now allude to their testimonial capacity. Those who labour under amentia, mania, or dementia, are unfit to give evidence as witnesses, but the evidence of those labouring under partial insanity may sometimes be admissible. The testimony of a lunatic during a lucid interval in his disease, is received in reference to matters which have occurred during the existent intermission, and which he may be supposed fully to comprehend; but should a paroxysm have intervened betwixt the events and the time that the testimony is required, then his evidence will be held as of little or no value, because it is presumed that the mental attack may have dissipated or distorted his recollection. The testimony of a monomaniac about matters unconnected with his lunacy may be good, but so liable are the emotional faculties to be perverted in such patients, and so difficult is it to be satisfied of the non-influence of the governing delusion, which may act in the most unsuspected ways, that the testimony, if uncorroborated, is of small value, and even though it stand the tests of recapitulation and cross-examination, should be admitted *cum nota* and with much caution. There are delusions which would incapacitate the witnessing of those possessed by them on any subject. I have more than once known one puzzled to determine without investigation whether the insane statement of an asylum patient were truth, mischievous falsehood, or pure lunacy; so unexpected, yet so plausible, circumstantial, and consistent, has the story been. The testimony of an individual who has truly recovered from insanity, regarding the circumstances of his illness or the events which preceded it, I believe to be very much more trustworthy than the evidence of a lunatic during a lucid interval, regarding even the circumstances occurring during that interval.

Civil responsibility of the insane in reference to contracts, marriage, &c.—Civil contracts entered into by those labouring under general insanity would be void, but in cases of partial insanity a legal agreement is not of necessity void if it be not the consequence of disordered mind, but fair and rational in its character, and accepted or proposed by one ignorant and unsuspicious of the existence of the insanity.

A marriage contracted in a state of general insanity would be illegal and void, as those afflicted by such a state are incapable of a lawful consent. In regard to marriages contracted by those partially insane, there is not an absolute rule. If the marriage were in any way a manifestation of insanity, as the result of insane delusion, or were contracted during a lucid interval by an interdicted lunatic, or were brought about by the collusion of interested parties, the insanity being on the one hand fraudulently taken advantage of, or on the other unsuspected or misrepresented, the agreement might be annulled at the suit of the party injured or misled. Very mad people do sometimes get wed. I have known an instance in which a female was married when in a state of absolute mania. She was under treatment and difficult to control beforehand, and much excited at the time of the ceremony, but next day she was perfectly ungovernable, and had to be sent to a lunatic system. Being in indifferent circumstances her maintenance had to fall on the parish, but whether on her husband's or her own became an interesting question. The business went forward in spite of the representations of her medical attendant; the relatives insisting that she was merely what is sometimes called hereabouts "carried," and would get sobered down by being married; the bridegroom that she was crossed and irritated by her friends, and would become quiet and tractable when removed to her new home. You will find it stated, that the behaviour of the person at the time of the ceremony will form evidence of the mental condition and of the validity of the marriage; but in Scotland, where the ritual part of the affair is, as concerns the parties joined, a much more passive matter than it is in England, briefly and privately performed in the bride's house, there is not the same opportunity for extravagance to be manifested; and in this particular case the clergyman, who was unwitting of the true state of matters, although things looked something queer, saw nothing in them, as he thought, for the short time he was occupied, but what perhaps he had seen on other such occasions—the effects of a rather premature and incautious indulgence in good cheer.

When does insanity justify the coercion of the patient?—In what cases are we justified in certifying that an insane person's condition is such as to require his confinement in a lunatic asylum? It has been said that no lunatic should be placed under restraint who is neither dangerous to himself nor to others; but both medical and legal practice will authorise more than this. A lunatic may be lawfully restrained for his own or others' protection, for the control of his conduct, for the requisite care of his person, and for the treatment of his disease. You will be justified in certifying that a lunatic is a fit subject for confinement in an asylum upon any of the following grounds, if these cannot be efficiently dealt with by any other course:—viz.,

To protect him from external danger.
To keep him from injuring himself.
To prevent him injuring others.
To prevent him from injuring property.
To obviate a propensity to criminal, indecent, and riotous conduct.
To guard him from maltreatment and neglect.
To subject him to efficient treatment for the cure of his disease.
To subject him to efficient treatment for the alleviation of its symptoms, when the disease is incurable.

Before adhibiting your name to "soul and conscience" documents, testifying confinement to be required, be sure that you recognise the existence of some of these foregoing grounds, in combination of course with the fact that the patient is truly insane. Imbecility of mind, or delusion, does not of itself justify restraint; it is the medical necessity of the case, or the loss of control in the patient, which does so; and even these in special cases may be dealt with otherwise than by confinement in an asylum. In addition to the medico-legal question of restraint, there is a medico-ethical one in regard to its mode. If an insane person be quiet in his conduct, easily directed and superintended, labouring under an incurable form of the malady, and in such circumstances as to be able to afford all necessary expense for comfort and attendance, a medical man should be shy of becoming a party to the confinement of such an individual to an asylum. The good of the patient is the object to be kept in view. Station in life makes an important practical difference in the matter. A poor man when he becomes insane becomes a burden upon others for his maintenance, and however quiet, harmless, and incurable he may be, it is necessary for his due protection and comfort that he should become the inmate of a public hospital. Cases of senile dementia in the better ranks of life do not require confinement. In cases of puerperal insanity also, a lunacy certificate should be a matter of serious consideration, as this form of disordered mind is most frequently curable, and that within a short period. In the better ranks insanity arising from such a cause is more likely to be speedily removed by judicious medical treatment at home or in a private family than in an asylum, and the patient will, after recovery, be in every case found to be highly pleased that the one course was adopted in preference to the other. I might go on to cite many examples in proof that it is not always either good judgment or fair play to consign a lunatic to the safe keeping of the walls of a lunatic asylum, though it must be admitted to be in most instances, and on the patient's own account, a right, a politic, and an unavoidable measure.

Although restraint in an asylum is not to be accounted necessary in every case of insanity, superintendence and control is requisite in all. Every one who is lunatic ought to be reported to and known by the authorities, if not under confinement; and no one labouring under insanity ought to be permitted to wander about at large by himself, for it is impossible to predict the actions to which he may be impelled in consequence of his mental disease. Although we may be supposed to have sufficient knowledge of the features of his case to measure the extent of his understanding and his amount of self-control, and imagine ourselves able to enumerate all his delusions, yet we cannot foretel or reckon upon the morbid actions to which he may be suddenly led, by insane ratiocination or diseased impulse.

Lucid intervals.—What constitues a lucid interval? During what is termed a lucid interval, the lunatic is held to resume the civil position of a sane person, and may enter into an agreement, give evidence, make a will, &c. He is also presumed to be again responsible for his actions. A lucid interval is an intermission of the disease for a longer or shorter period, and is not a necessary, neither a common occurrence, even in acute cases. Such intermissions are never observed in amentia, imbecility, or chronic dementia,—are very rare in monomamia, and occur most ordinarily in cases of maniacal excitement. They have to be distinguished from remissions. Remissions have that frequency amongst the insane which legal writers falsely assume for lucid intervals; wherever there exists any degree of excitement or depression, there are remissions. They are observable, therefore, in the great majority of lunatics—indeed in every case of insanity, whether chronic or recent, which does not simply consist of congenital mental deficiency: remissions are very common, lucid intervals rather rare. In judging of a lucid interval, the best course to pursue will be to get the patient to exhibit his powers of mind in writing, and then to have a personal interview, in which the history and features of his own case should form the chief matter of conversation. If the personal examination be satisfactory, and also the character of the epistles, and if you find that his feelings and emotions are no longer morbid, but natural, you may safely certify that you consider the condition to be at least a lucid interval, but I would advise you in no case to do so solely upon the grounds of apparent intellectual sanity—the mere absence of incoherence and delusions. A first lucid interval is not to be distinguished from a recovery by its features, but may frequently be suspected from the suddenness of the improvement. The shorter the interval which marks the particular case, the less are you to depend upon the integrity of the mind during the state of calm. The truest lucid intervals most usually occur about regular periods, and last for several weeks or months; they are generally of longer duration than the paroxysms, but as the disease progresses they come at longer intervals and less regularly, they have a shorter duration and are less perfect, having more the character of remission than intermission. The first fully developed intermission is the interval which is most lucid. There is occasionally a very short lucid interval preceding death, which I have not myself witnessed but in some instances of recent acute mania, in which the excitement was so violent as to prove speedily fatal by the exhaustion of nervous energy. The patient, after suffering for two or three weeks from a state of sleepless, unceasing, and extreme frenzy, falls into a typhoid-like condition, manifests a return of soundness of mind, and shortly expires.

In regard to lucid intervals the law exercises a praiseworthy caution. The evidence of sanity must be as clear as were the proofs of disease. Though the validity of a will executed in such a condition has been frequently upheld in law courts, there is no example of any one having as yet een punished for a crime committed in such an quivocal state of soundness, as an intermission of nsanity must be considered to be. In all lucid ntervals which are not actual recoveries, it is to e presumed that though the symptoms of the malady are for the time inappreciable, pathologial causes of the disease still remain. The flame has gone out, but the inflammability continues, and the slightest cause may be sufficient to evoke the fire again before it would of itself burst forth. 'Burdened as the criminal law is," says Dr. Ray, "with false principles on the subject of inanity, the time has gone by when juries will return a verdict of guilty against one who is admitted to have been insane within a short period of time before the criminal act with which he is charged."

Recovery.—When is a person to be held as having recovered from an attack of insanity? The following are the grounds which will justify this conclusion.

First, The return of the natural complexion and expression of countenance, and the disappearance of the signs of related physical disorder.

Secondly, The absence of intellectual disorder, —delusion and incoherence; the patient being capable of recognizing his insanity, and conscious of its removal.

Thirdly, The absence of excitement, manifested in the return of adequate self-control.

Lastly, The restoration of the emotional faculties to their natural character, the return of the benevolent emotions, the feeling of sympathy for others, the love of kindred, &c.

Such changes in the patient indicate the removal of the pathological causes of the disease, the re-establishment of the understanding, and the restoration of his moral faculties to their healthy tone. When they all concur, you may be satisfied that the patient has recovered from the attack of insanity, but if any one of them be wanting, you must consider that an essential step still remains to be made. It very seldom happens that a patient recovers in one or two of these points without recovering in them all, but it does so happen occasionally, and gives rise to no little difficulty in determining upon the continuation of restraint.

When once a person has been found lunatic by commission, or his insanity declared in any other published form, the law is very jealous of allowing him to resume his civil freedom, and requires the clearest substantiation of the fact of recovery, before the commission is superseded and free enlargement allowed. To certify a lunatic's recovery you ought to make as scrupulous and careful an examination as you have been instructed to do before becoming concerned in a certificate of lunacy. Be careful not to mistake partial for complete recovery, and remission or intermission of the disease for absolute removal. Unless the patient has recovered in every particular above mentioned, you may be certain that he will not remain stationary after his enlargement, a man with a new personality; and in the generality of instances the chances of relapse are much beyond those of confirmation. As a general rule, you may be doubtful of the stability of recovery directly as its suddenness. If the disease has come on gradually, be sure that it will be still more gradual in its retiring. Every cure has to be tried by the test of time, and should the disorder have manifested the recurrent type, the proof must be a slow one in order to distinguish betwixt lucid intermission and recovery. The distinction of cure and intermission is however more medical than medico-legal, but it is one of importance in reference to the full emancipation of the patient.

Discharge.—When should a lunatic be removable from confinement? It is to be wished that the law with us in Scotland were somewhat explicit on this subject. In the present state of matters, any insane person who is confined in an asylum may be removed at any time by those who have obtained his confinement; the consequence of which is, that many who are progressing favourably enough may be made, through the mistaken conduct of friends often not strong in judgment themselves, hopelessly incurable, and not a few come to perpetrate criminal atrocities. No lunatic should be consigned to an asylum who does not need to be so, but having required this, for any of the reasons previously alluded to, his enlargement should be obtainable only by petition and warrant on sufficient grounds, in the same way as his constraint was effected. In addition to the plea of recovery a patient might be removable for better treatment elsewhere, or be discharged because he is incurable and harmless, or in a lucid interval which former experience has shown may be longer than his paroxysm, but in no case, unless in that of thorough recovery, ought discharge from confinement to imply full emancipation from control. Even in some cases of recovery it would be well if perfect freedom were to be interdicted, as, for example, when insanity has resulted and recurred from drunkenness, for in every such case, without careful superintendence, discharge is certain relapse, and freedom a foolish and a cruel gift, precipitating its unfortunate possessor, with every exercise of it, deeper and deeper into the darkest gulph of madness. There should also be a control exercisable by competent authority over the managers of public asylums, to prevent them also from dismissing lunatics, unless upon grounds that are satisfactory to those who have entrusted them to their care, and to the sheriff on whose warrant they accepted the trust.

Criminal responsibility of the Insane.—Theorists have occasionally run mad on the subject of criminal responsibility. Some have held that punishment should in every instance overtake crime by whomsoever committed; others that punishment should follow crime in no case, all crime being a result of faulty or diseased organization. Dr. Heinroth of Leipsic's insanity was, that all disease depends on sin, therefore instead of being a plea for exemption from punishment, is but the more a proof of guilt.

An English judge tells us, that medical men have the delusion that insanity renders a man dispunishable, which is a delusion of the bench; such a mistake is not to be found recorded by any English medical authority. The insane we all know may be legally punished, whether justly or not. There is an insanity which annuls criminal responsibility, and an unsoundness which leaves it unmitigated. How are these distinguished? The law directs the application of the following test:—Was the individual's disease of the mind such as to make him incapable of distinguishing right from wrong at the time he committed the offence? if so, he has a criminal capacity; and if otherwise, he is not guilty on the ground of insanity. The phrase "right and wrong," may be read lawful and unlawful, legal and illegal, and the person be supposed irresponsible, either on the ground of perverted moral sense, thinking wrong right, or of obscured intellect, being incapable of remembering and reflecting, and having no right consciousness of the relations of things. How is this knowledge of the criminal's mind to be got? It is sought for by an investigation of the history of the offender previous and subsequent to the act, in order to discover the character of his immediately antecedent or subsequent conduct. The fore or after existence of diseased mind, and the value of the indications of it, are referred to medical opinion. The deduction as to the consciousness or unconsciousness of right and wrong in regard to the act itself, is left to the jury.

Now let us consider this test, and the way it is managed. The test is sufficient in cases of amentia, mania, and dementia, the patients in such forms of insanity manifesting in their general conduct evidences of non-development or disease, and clear incapacity for competent ethical or metaphysical distinctions, but is I believe incapable of application or insufficient in cases of partial insanity, the sole cases in which difficulties occur, and special tests are desirable. On the one hand, we may suppose an individual unconscious of right and wrong, and yet not the subject of disease, the voice of conscience being silenced by vice, or perverted in its sound by false training, false reasoning, false principles; on the other hand, and here we do not presume, but assert, a person may be conscious of right and wrong, and yet not be a proper subject of punishment. Before a person can be deemed responsible for his actions, he must not merely have the power of *distinguishing* right from wrong, but the power of *choosing* right from wrong; a criminal being properly punishable, not because he knew good from evil, but because he voluntarily did the evil, having the power to choose the good. If a special test of insanity were to be insisted upon, the power of self-control, as being the true index of responsibility, would seem to be better than that of the integrity either of consciousness or conscience. Had the lunatic, at the time of committing the deed, a knowledge that it was a criminal one, and such a control over his actions as might, if exerted, have hindered him from committing it? Most lunatics have an abstract knowledge that right is right, and wrong, wrong;—as much of it as should keep them from being guilty of unlawful deeds, were but such knowledge sufficient for that end,—but the voluntary power over actions and thought is in every case impaired. I do not say that free agency is annihilated; this were untrue; there could then be no moral treatment of insanity; but it is much limited, and overruled by various insane motives. Lunatics have that amount of freedom of will, which it is philosophical, charitable, and advantageous to recognise for their benefit, but at the same time such a defect of free agency as makes the full burden of responsibility to imperfect human legislation, a discreditable and unjust oppression. Many of them may be fully accountable *in foro conscientiæ*, but in all other courts, if the insanity be apparent, the defect of self-control should be presumed to exist, and the individual condemned to restrain, or, if considered liable to punishment, subjected to only a mitigated penalty. There are many states of insanity in which the will is not completely fettered. When the disease is commencing, the will may often be observed struggling before it is overcome; indeed, a highly energetic will may prevent insanity, it may uproot or control a delusion. When the disease is retiring, the will may also be observed gradually reasserting its authority over the morbid fancies. Here is an example. A recovered patient, to whose narrative I have more than once referred, was directed in his illness by voices which he heard misleading him. They told him that he was in heaven, and he believed them; that such and such an individual was the Son of God, and the person became to his belief the Divinity; but by and by we find that the voices talked to him in a very singular strain; they said, "You are in a lunatic asylum, *if you will*; if not you are in such and such a place."—"That person is Samuel Hobbs, your attendant, *if you will*; if not he is the Saviour." In short, he was beginning to recover from his delusions, or rather from the manifestations of them; his madness was becoming a matter of his own choice; his will was becoming free, and the state of responsibility returning.

In order to uphold the inference of the unconsciousness of right and wrong, when the plea of insanity is urged, evidence is sought of the existence of a sufficient degree of delirium, delusion or imbecility of mind, either antecedent or subsequent to the action. No direct conclusion on the point is allowable from the character of the act itself, and on this account it may happen that the best evidence of insanity is rejected; indeed, cases of undoubted insanity from time to time occur, in which there is no sufficient evidence of the morbid condition, apart from the circumstances of the criminal act for which the person is tried; and it sometimes will happen also that these are so extraordinary in their kind, as to compel a verdict of insanity, despite legal orthodoxy. The important point of hereditary predisposition has been obcted to as part of the evidence in defence, but conceive that the danger to be dreaded from allowing such a circumstance its due force, is quite unterbalanced by the chance of injustice which ay result from its rejection. Delusion is no dequate plea in any case where it cannot be hown to have impelled the criminal to his crime: this rule, if absolute, there is manifested the ttle knowledge that may lead to much error. n insane act is the index in most cases of a delusion, yet the motive may not be apparent though he result is, and the delusion which seems merely o be co-existent with—not related to the act—ay yet be impulsive; for the connection betwixt n act and a delusion is often of a most insane ind, not to be surmised, nor understood when known, but existing nevertheless. Even when he crime is shown to be a morbid result, it may not be a legally sufficient plea for exculpation; for, on the "right and wrong" principle, it matters not that the act flowed from a delusion, if the person was at the time aware of its illegality and its consequences.

The medical witness is not much to be envied when summoned for the defence in cases where the plea of insanity is raised, for though his opinion on the existence of insanity be worth that of jury and judge together, it may be suppressed by the bench, in some manner not very complimentary, and ignorantly assailed in the criticisms of the press. I declare it to be impossible for any one to tell you with certainty what is allowable medical evidence in such cases. Do such and such facts in the evidence, or such and such facts in the case, indicate insanity? Was the prisoner insane at the time that the act was committed? Was he labouring under delirium or delusion? Could the crime have flowed from his insane notions? These are all questions which the judge would probably object to, or find fault with being answered, if they were put, as they have been, by counsel. The ordinary objection is, that to question the medical man so, is to make a jury man of the witness: this does not seem a sufficient reason, for the opinion conveyed in the answer, though a scientific opinion, is not a verdict or declaration, unless the jury see fit to adopt it. Scarcely an instance occurs of acquittal on the ground of insanity, in a case of much public interest, that the medical evidence is not impugned by smart editors, in astonishing leaders on the incompetency of medical knowledge in such matters, and the punishable capacity of the insane. The proceedings and decisions in our courts in cases of diseased mind are discreditable to the judicature of the age; the dogmas of the law stand in much need of being reconsidered, and the whole course of procedure amended. It is by the influence of medical and not of legal expositions, that the desired reforms are likely to be brought about. "The same courage," says Dr. Conolly, "which causes the physician to brave the dangers of pestilence, should support him in this duty, beneath the assault of pestilent tongues and pens. Not the voice of the people calling for executions, nor the severities of the bench, frowning down psychological truth, should shake his purpose as an inquirer and a witness. His business is to declare the truth. Society must deal with the truth as it pleases."

The jury determine on the guilt of the offender, which they are understood to do by solving the question of consciousness of right and wrong. To do this, they are not of necessity permitted the light of a scientific opinion on the point. Without adequate knowledge of the phenomena of diseased mind, and unguided by those who are familiar therewith, it is not to be wondered at that great mistakes are made, that verdicts are inconsistent with the evidence brought forward, and that parallel cases are decided in opposite ways. It would be better that the ordinary assize determined on the mere fact of the commission of the crime by the accused,—on the guilt of the person apart from the insanity,—and that the responsibility of the offender should be a matter for the after consideration of a special jury. When a presumed lunatic commits an offence, let him be tried first on the charge, and be entitled, on the certificate of his mental state by competent examiners, to appeal against sentence, on the ground of insanity; then let his mental condition be testified to, and proved before a jury specially qualified to understand and appreciate the evidence. Such a jury might, as suggested by a writer in the Journal of Psychological Medicine, consist in England, of the Lunacy Commissioners, and of medical men experienced in mental disorders. The matter to be investigated should be the diseased or defective condition of the offender, and whether it be such as to limit or annul his responsibility. The evidence should be obtainable from the history previous to the crime, the circumstances of the deed itself, the history subsequent to the crime, and the personal examination of the prisoner.

A lunatic who is found guilty of a capital charge, ought to be, and generally is, confined for life in a lunatic asylum. When the crime is of less magnitude, the confinement should be until recovery, and for a certain length of time beyond it, in order to prove the stability of the cure; before enlargement the patient should be certified to be sane in mind by competent examiners, and the evidence of recovery tested by a special jury. Some have advocated the punishment of all partial lunatics who commit offences against the law, on the principle, not merely of example to all, but also on that of deterring more particularly those who are disordered in mind from giving way to criminal impulses. For the former object we have unfortunately opportunities sufficient, without dealing by disease as if it were a crime, and the latter is not capable of being affected by such irrational means. Oh! but punishment is found to have its advantage in hospitals, as part of what is called the moral treatment of the insane. It may be so, perhaps, but then it is punishment of a beneficial kind, applied to the lunatic himself, and not inflicted on his fellows for his warning and improvement. No lunatic will be edified and improved by the punishment of an insane offender, for he will not consider himself as in the class for whom the experiment is specially intended. If capable of being deterred. the example of the penalty endured by those who are truly criminal will amply suffice for the purpose. An insane criminal action is committed either in delirium—the patient not knowing what he is about; in delusion—the offender believing the act to be not criminal and avoidable, but necessary and right; or in obedience to diseased impulse, when to choose and to do otherwise is impossible. Under peculiar circumstances, a lesser than the ordinary penalty might be inflicted on the partially insane, just as we see occasionally ordered by magistrates for children under the age of full responsibility; but in general, I believe the punishment of lunatics to be useless for any good purpose,—a mistake and a folly, if not even a sin.

To conclude. As a general rule a lunatic is properly dispunishable, because disease has restricted or destroyed his capacity as a free agent Every lunatic should be under control, to prevent him from illegal actions. No one labouring under amentia, or mania, is a fit object of punishment. A monomaniac ought not to be punished, when it is found that the crime has flowed out of the governing delusion; when the connection betwixt the two cannot be traced, if punishment is awarded, the penalty should be a mitigated one. The morally insane should not be punishable to the extreme. No one labouring under secondary dementia ought to be accounted punishable; and in no case of imbecility, in any degree, should punishment be to the extreme.

Does Insanity diminish the chances of life?—Lunatics are more liable than others to the whole class of nervous disorders, and especially to epilepsy, apoplexy, and paralysis. The peculiar condition of a lunatic's nervous system renders other disorders, with which he may become casually affected, more liable to have a fatal termination. I must tell you, however, that some have held an opposite opinion. It has been asserted that insanity does not reduce the chance of life below the averages. Independent of its complications, there are many grounds for considering that insanity is a condition unfavourable to longevity; instead of enlarging on these, however, I shall rather lay a proof of the proposition before you. The average age at death, in the York Retreat, was under 48 years; the average age at which the disorder was manifested, was 38. Now, says Mr. Thurnam, the able statistician of that hospital, the expectation of life at 38 years of age, according to the most recent researches, is not less than 28 years, so that the mean age attained should have been 66, instead of 48. The average age at which lunacy appears is 38, at which age the expectation of life is 28 years more; but the average age of lunatics at death is 48,—only 10 years more—instead of 66; hence, insanity shortens life. In 126 fatal cases of insanity in the Aberdeen Asylum, the average is, I find, 46 years nearly. The statistical tables of the York Retreat lead to another conclusion, less expected, which also shows the unfavourable influence of the disease on the chances of life. It is this: the duration of life is not of much higher value even in those who recover, for the average age at death in those who had been discharged recovered was 57, instead of 66, or nine years less than the average probability. The subject is of much importance in connection with life-assurance.

THE

HEART AND ITS DISEASES.

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Introductory remarks—Shape of the heart—Divisions of the heart—Circular and longitudinal grooves—Position of the heart—Relations of the heart—Region of the heart's superficial dulness—Connexions of the heart—Chambers of the heart—Mode of opening the heart to display its interior—Description of the right auricle—right auriculo-ventricular orifice—Description of the right ventricle—Tricuspid valve — Pulmonary orifice—Sigmoid valves—Sinuses of the pulmonary artery.

The heart, the central organ of the circulation, by which the blood is transmitted to the lungs, and to the remotest parts of the body, and to which the blood from the lungs, and from every part of the system, is returned, is a hollow muscular viscus, divided in its interior into several istinct compartments, covered externally and ined throughout by serous membrane; situated n the middle mediastinum, near the centre of the avity of the thorax, about the junction of the uperior with the two inferior thirds of the body; ying between the lungs and the two layers of leura which constitute the mediastinum, and nclosed in a proper fibro-serous capsule, the periardium.

The heart occupies the first place in the circuatory system; its functions yield in importance to o other organ, for life is dependent upon its egular and constant action, and the healthy xercise of the functions of every other organ mainly depends upon its integrity. Hence its physiology and pathology have always constituted subjects of the highest interest to the medical inquirer, and its diseases have occupied the pen of some of the brightest ornaments of the medical profession.

Although much valuable information upon various points connected with our subject existed previous to the discovery of auscultation, much, also, it must be confessed, remained unknown. Laennec's beautiful discovery opened up an altogether new means of investigating the diseases of this organ; it added, in fact, a new sense to our other methods of detecting and distinguishing between them; and it gave an impulse to the study of diseases of the thoracic viscera which has continued unabated to the present day. So that there are scarcely any other organs the physiology and pathology of which have made more rapid advances, and the present state of our knowledge of which so remarkably contrasts with that which prevailed at a period comparatively recent.

If it be true, as a general rule, that abnormal conditions of organs cannot be recognised or distinguished without a knowledge of what constitutes their healthy state, and that derangement of function cannot be explained without an acquaintance with the functions in health, to no organ does this so peculiarly or with such force apply as to the heart; and yet, until within a few years, we had little positive information upon points apparently so simple as the size and weight of the healthy heart: erroneous opinions likewise prevailed respecting the thickness of the walls, the capacity of the cavities, and the diameter of the orifices of the healthy heart; and nothing certain was known as to the mechanism by which its sounds are produced.

It is obvious that unless correct ideas on these heads are entertained, we shall not be in a position to decide whether the parietes of the heart are hypertrophied or attenuated; whether its chambers are dilated or preserve their normal dimensions; or whether its orifices are increased or diminished in diameter. Unless the exact size and shape and position of the heart are known, deviations from its normal condition are liable to be overlooked, or functional derangement to be mistaken for organic disease; and unless we are familiar with the normal sounds of the heart, with the situation at which they are best heard, and with the mechanism by which each is produced, we shall not be in a position to recognise abnormal sounds, much less to trace them to their source, or to determine their cause.

I propose, therefore, previous to entering upon diseases of the heart, to consider briefly the anatomy and physiology of this organ; to describe its exact position, and the relation of its several parts to points upon the surface; to give a summary of the researches which have been made respecting its weight and size, the thickness of its parietes, the capacity of its cavities, and the diameter of its orifices, and to notice shortly the relations and connexion of its investing membrane, the pericardium.

Shape of the heart.—The shape of the heart is almost too well known to require description; the older anatomists compared it to a pyramid, or to a flattened cone; but a flattened cone (as Winslow remarked) is not a cone. The heart, taken as a whole, has not a regular geometrical figure; and as the term *cordiform* has been generally adopted, and is familiar to most persons, it will be sufficient to say that the heart has a cordiform shape, the auricles forming the upper and broader part, the ventricles the lower, narrower, and more conical part; this conical form of the ventricular portion of the organ being produced by the peculiar arrangement of the muscular fibres which go to form its walls.

The base of the heart is formed by the auricles, its apex by the left ventricle alone, as the right ventricle does not descend as low as the left. The anterior surface of the ventricular portion of the heart is convex; the posterior surface, which rests upon the diaphragm, is flattened. The left border or edge of the heart is obtuse and rounded; the right edge is more acute.

Divisions of the heart.—The heart, although apparently a single organ, is in reality double, and consists of two symmetrical hearts joined together, each with its own system of vessels, each circulating a different kind of blood, and each performing a distinct office; the one circulating the blood through the lungs, the other through the system; the one receiving and transmitting venous, the other arterial blood, but both simultaneously performing their functions.

One of these divisions of the heart is termed the *right*, the other the *left* side of the organ; but, from their relative position, the former should rather (as was long since pointed out by Winslow) be termed the anterior, the latter the posterior side of the heart. These terms are retained from the earlier anatomists, having been applied at a period when the knowledge of anatomy was derived chiefly from the dissection of animals, in which the heart always lies vertically in the chest, not obliquely as in the human subject. Each of these divisions of the heart consists of two cavities, an auricle and a ventricle, which communicate with one another but have no direct communication with their corresponding cavities: the auricle on both sides is above, the ventricle below.

The parietes of the right side of the heart, particularly of the ventricular portion, are much thinner than those of the left; the right ventricle has merely to transmit its blood through the lungs, while the left has to transmit its blood throughout the system. The pulmonary artery, likewise, has thinner coats and more delicate valves, than the aorta, evidently because so much power of resistance was not required.

The right side of the heart, owing to its receiving and transmitting dark or venous blood, was named by Bichat, "cœur à sang noir;" the left side, from its receiving and transmitting red or arterial blood, was termed by him, "cœur à sang rouge." The right auricle is sometimes termed the sinus of the venæ cavæ; the left, the sinus of the pulmonary veins. The right ventricle is sometimes termed the pulmonary ventricle; the left, the aortic or systemic ventricle.

Circular and longitudinal grooves.—The distinction between these parts is marked by grooves upon the surface of the heart; two of which are longitudinal, and one circular. The anterior longitudinal groove runs from the base of the ventricles to the right side of the apex of the heart, dividing this part into two unequal halves: in it, the principal division of the anterior or left coronary artery is lodged. Upon the posterior surface, a similar groove, which divides the ventricular portion of the heart into two nearly equal parts, lodges a large branch of the posterior or right coronary artery. These grooves, which are often in a great measure obliterated by adipose tissue, mark pretty exactly the site of the septum ventriculorum. In some instances, owing to the anterior longitudinal groove being continued through the apex, this part has the appearance of being double or forked. Morgagni found this well marked in five out of eighteen subjects which he examined for the purpose. The circular groove, which runs round the heart between the base of the ventricles and the auricles, lodges the trunk of the posterior or right coronary artery, and a large branch of the anterior or left coronary artery: it marks the line of separation between the auricles and the ventricles.

The fat which accumulates upon the surface of the heart is always first deposited in these grooves: in the circular groove first; next in the anterior; and next in the posterior longitudinal groove: when a larger amount occurs, it will be found also along the thin edge of the right ventricle, and upon the margin of the appendices of the auricles, particularly the left. It is usually met with in persons who have a general tendency to obesity; but a considerable amount is occasionally found in subjects dying of chronic disease, accompanied by the absorption of all the subcutaneous fat. Fat is altogether absent in the heart of the infant, and M. Bizot has shown that sex has some influence upon its deposition, as it is more frequent in the female than the male; and this holds good even in diseases accompanied by much emaciation: thus in eleven males who died of phthisis, fat was completely absent in six; while in twenty-six females who died of the same disease, it was completely absent in only three.

Position of the heart.—In order to determine the exact and the relative position of the heart, the most eligible plan to adopt is to dissect away the soft parts from the front of the chest, with the intercostal muscles, in a subject where the parts are perfectly healthy: the pericardium being then laid open, the position of the heart, and the relation of its several parts to fixed points upon the surface, can be readily determined.

The heart is situated obliquely in the cavity of the thorax, from above downwards, from before backwards, and from right to left: it lies behind the middle and lower bone of the sternum; also behind the cartilages of the 3d, 4th, and 5th right ribs near the sternum and the cartilages of the 3d, 4th, 5th, and 6th ribs on the left side; in front of the bodies of the 6th, 7th, and 8th dorsal vertebræ; and immediately above the diaphragm, upon the cordiform tendon of which it rests, the serous layer of the pericardium only being interposed.

Owing to its oblique position, the base of the heart looks upwards and backwards towards the right shoulder, its apex downwards and forwards towards the space between the cartilages of the 5th and 6th ribs on the left side, where its impulse may be felt during life. In the early period of intra-uterine life the heart lies vertically in the chest, as in mammalia generally: it is not until the beginning of the fourth month that it commences to assume the position which it afterwards retains.

Relations of the heart.—In the healthy chest, the heart is overlapped laterally, and in a great measure in front, by the lungs; posteriorly the œsophagus and descending aorta lie between it and the bodies of the dorsal vertebræ. Inferiorly the heart rests upon the cordiform tendon of the diaphragm, the serous layer of the pericardium only being interposed. The base of the heart is on a line with the interval between the cartilages of the 2d and 3d ribs: its apex is a little below the 5th left rib, slightly to the left of the junction of this rib with its cartilage. During life its impulse is felt between the cartilages of the 5th and 6th left ribs, at a point about two inches below the nipple (in the male,) and three inches to the left of a vertical line through the centre of the sternum; the nipple in the adult male being immediately opposite the lower edge of the fourth left rib, a little more than an inch to the left of the junction of this rib with its cartilage.

Region of the heart's superficial dulness.—The anterior border of the lungs in the healthy subject corresponds above to a vertical line through the centre of the sternum: about the middle of this bone, and pretty nearly on a line with the cartilage of the fourth ribs, the margins of the opposite lungs begin to separate from one another, the line of the left being much more oblique than that of the right. Thus, a small portion of the heart's surface is uncovered by lung, which has a triangular shape, the base below, the apex above: it consists of a portion of the apex of the right ventricle, and part of the left ventricle near its apex. This triangular space is seated on a plane below the nipple and the fourth rib: its base is on a line with the cartilage of the sixth ribs; its right boundary is nearly a vertical line through the centre of the sternum; its left an oblique line through the cartilages of the fifth and sixth ribs on the left side. This is the part of the præcordial region where the heart is in contact with the parietes of the chest, and where a dull sound is yielded by percussion.

The relations of the lungs to the heart, and consequently the amount of the surface of the heart which comes in contact with the parietes of the chest, are altered, it must be recollected, by respiration, particularly by a forced inspiration or expiration: they are likewise materially altered by disease. On a full inspiration the lungs expand, and the heart is more overlapped by these organs; at the same time the contraction of the muscular fibres of the diaphragm draws downwards its central tendon (to which the pericardium is attached,) and with it the heart: hence the region of the heart's dulness will be both diminished laterally and will be on a plane lower down than natural. "The deepest possible inspiration, however, even in cases of emphysema, never (according to Dr. Sibson) obliterates the region of the heart's dulness." It is often, under such circumstances, quite below the sternum, and behind the xyphoid cartilage, and the cartilages of the 6th, 7th, and 8th left ribs." On a full expiration, the volume of the lungs is diminished, less of the heart's surface is overlapped by them, and the region of the heart's dulness will be enlarged laterally; while, owing to the ascent of the diaphragm, and the diminished volume of the lungs, it will be on a plane somewhat higher than natural. In persons with narrow chests, the region of the heart's dulness is almost always greater than in individuals with broad and expanded chests.

Connexions of the heart.—The heart, I have said, rests upon the diaphragm: it is connected to it by the fibrous layer of the pericardium which is inserted into the cordiform tendon, as well as by the serous layer which lines the central aponeurosis of the diaphragm where the fibrous layer is deficient. It is still further connected to it by the ascending vena cava; the orifice in the tendinous portion of the diaphragm by which this vein passes from the abdomen to the thorax is close to the junction of the inferior cava with the right auricle of the heart; and the tendinous fibres which come off from the margin of the foramen in the diaphragm proceed upwards and downwards upon the anterior, posterior, and lateral surfaces of the vein, and unite the two parts very closely together. The opening in the diaphragm through which the ascending cava passes, corresponds to the upper part of the xyphoid cartilage: it is on a line with the cartilage and lower margin of the fifth ribs in front, and with the body of the ninth dorsal vertebra posteriorly.

The heart is retained *in situ* by the pericardium, by the two layers of pleura which constitute the mediastinum, and by the great vessels which convey the blood to and from it; above, the aorta and pulmonary artery proceed from the base of the ventricles; posteriorly, upon each side of the left auricle, the pulmonary veins open into it; on the right side posteriorly the ascending and descending venæ cavæ open into the right auricle; the former vein, as I have said, being intimately united to the diaphragm.

The base of the heart, from its connection with the great vessels, is in a great measure fixed: the apex and body of the ventricular portion are free, but the motions of this part are limited by the pericardium. The whole organ is, however, liable to slight changes of position during inspiration or expiration, and in the erect or recumbent posture: during inspiration the heart descends slightly; during expiration it ascends slightly; in the recumbent posture the heart recedes from the parietes of the thorax; in the erect posture it approaches them. In diseased states of the lungs or pleura the heart may be displaced considerably: thus, when a large amount of fluid is effused into the pleura on one side, the heart will be pushed towards the opposite side: in emphysema of the lungs of long standing, the heart is protruded downwards; while in large abdominal tumors, in ascites, pregnancy, &c., it will be pushed upwards. In cases of large introthoracic tumors, the heart may be displaced either upwards, downwards, forwards, backwards, or laterally, according to the situation and size of the tumor, and the rapidity of its growth. These matters will, however, be fully considered when we come to describe the diseased states of the organ.

Chambers of the heart.—The chambers of the heart are four in number,—two auricles and two ventricles. The auricles are two musculo-membranous sacs, which occupy the upper and posterior part of the organ, forming its base, separated from one another by a thin musculo-membranous septum; the ventricles are two muscular cavities, which form the body and apex of the heart, separated from one another by a thick muscular septum. The auricle and ventricle upon each side communicate with one another by a large orifice, through which the blood can pass readily from the former into the latter cavity, but is prevented from returning by a valvular apparatus. The right auricle receives the venous blood from the system generally, from which it passes into the right ventricle, by which it is propelled through the lungs. The left auricle receives the arterialized blood from the lungs, from which it passes into the left ventricle, by which it is propelled through the system. The auricles and ventricles contract and dilate alternately, and a double circulation is thus constantly going on,—a lesser and a greater, or a pulmonic and systemic, and the blood traverses two circles in its course,—a greater and a lesser, which are continuous the one with the other.

The organs which belong to the greater or systemic circulation are the left ventricle, the aorta and its branches, the veins of the body, and the right auricle. The organs which belong to the lesser or pulmonic circulation are the right ventricle, the pulmonary artery and veins, and the left auricle. The greater or systemic circulation commences in the minute ramifications of the pulmonary veins, and terminates in the capillaries of the arteries of the body. The lesser or pulmonic circulation begins in the capillaries of the veins of the body, and ends in the ultimate ramifications of the pulmonary. Thus the blood which has served the purposes of nutrition is brought by the venæ cavæ to the right side of the heart, by which it is transmitted to the lungs, where it is submitted to the action of atmospheric air, and assumes the bright red colour of arterial blood. It is then returned by the pulmonary veins to the left side of the organ, to be again distributed throughout the system.

Mode of opening the heart.—In order to display the interior of the ventricles, and to permit of the examination of the valves, some care is required in opening the heart. The most simple and convenient method appears to me to be to commence the incision in the pulmonary artery, carrying it through this vessel into the right ventricle, cutting between the sigmoid valves, and continuing to the apex, keeping close to the septum. A transverse incision, meeting the other about its centre, may then be made in the walls of the right ventricle. the aorta being then separated from the pulmonary artery, a similar incision is to be made through it into the left ventricle, and continued to its apex, keeping close to the septum. This incision can then be continued on through the apex upon the posterior surface of the heart. To display the interior of the right auricle a crucial incision may be made upon its anterior aspect, while the left auricle may be opened upon its posterior aspect, between the orifices of the opposite pulmonary veins.

Right auricle.—The right auricle forms the right, the inferior, and a portion of the anterior surface of the base of the heart. Its anterior surface lies to the right of the sternum; its posterior surface rests upon the diaphragm. It consists, in general terms, of a sinus, and an auricular appendix. The sinus of the auricle receives the blood from the descending and ascending venæ cavæ; the auricular appendix, which lies behind the cartilage of the third right rib, its tip resting against the right side of the ascending portion of the arch of the aorta, pretty nearly on a line with the sigmoid valves of the pulmonary artery, has a rude resemblance to the ear of a dog, from which it received the name, which has come since to be applied to the entire chamber. It varies somewhat in size and shape in different subjects. Its margin is often notched or serrated, something like the edge of the comb of a cock (to which the earlier anatomists compared it.) This appearance is, however, usually better marked in the appendix of the left than the right auricle.

The capacity of the cavity of the right auricle exceeds that of the left (as first pointed out by Vesalius:) its parietes are also thinner. Between the orifice of the superior cava and the appendix in the auricle a thick fasciculus of muscular fibres projects upon the interior, from which smaller fasciculi come off at a right angle, and run parallel to one another towards the appendix. The latter have received the name of musculi pectinati, from their fancied resemblance to the teeth of a comb, the thick fasciculus before mentioned forming its back. This is more evident in hearts in which the walls of the auricle are hypertrophied. In the auricular appendix the adjoining fasciculi are connected together by transverse branches, which gives its interior a reticulated appearance. In the interstices of these fasciculi the parietes of the auricle, when put on the stretch, will be observed to be semi-transparent in some places, the pericardium and endocardium being at these points in contact, and alone forming its walls.

On its right side posteriorly the right auricle receives the blood from the descending or superior, and the ascending or inferior vena cava. The former returns the blood from the head and upper extremities, and opens into the superior and anterior part of the auricle; the latter, which is on a plane posterior to it, returns the blood from the abdomen and lower extremities, and opens into the lower and back part of the auricle, near the septum auricularum. The manner in which the two venæ cavæ communicate with the auricle is such that the blood from the superior cannot fall into the orifice of the inferior cava. The current of the superior cava is downwards and forwards towards the auriculo-ventricular orifice: the current of the inferior cava is backwards and to the left side, towards the septum of the auricles, and it enters the auricle nearly at a right angle with the rest of the vein, immediately above the Eustachian valve, which directs the current towards the fossa ovalis.

The left posterior wall of the auricle is formed by the septum auricularum, at the lower part of which, immediately above the orifice of the inferior cava, we see the remains of the foramen ovale, through which, during fœtal life, the blood passed from the right to the left auricle, particularly that conveyed by the ascending vena cava, which is directed towards this orifice by the Eustachian valve. It is by no means rare to find the foramen ovale only partially obliterated in hearts otherwise perfectly healthy, and in subjects who had never exhibited any symptom of morbus cœruleus. The opening is usually valvular, is seated at its upper part, and will frequently admit a probe or the handle of a scalpel. M. Bizot states that he found the foramen ovale in the same condition in which it is at birth, or only partially obliterated, in eighteen out of seventy-three male subjects, and in twenty-six out of eighty-two female.

Right auriculo-ventricular orifice.—Inferiorly the auricle is united to its corresponding ventricle, and here the orifice of communication between the auricle and the ventricle is seated. This, the right auriculo-ventricular orifice, has an elliptic shape, the long diameter from before backwards, as the heart lies in situ; it is larger than the corresponding orifice of the left side, and its margin, like that of the latter, consists of dense, white, fibrous or tendinous tissue. By the older anatomists this was termed the right tendon of the heart. "It is plainly," Bell observes, "the place of union between the auricle and the ventricle, which are in the fœtus (the chick, for example) distinct bags." The right auriculo-ventricular orifice is situated behind the sternum, pretty nearly on a line with the junction of the cartilages of the fourth ribs with that bone. Between the Eustachian valve and the auriculo-ventricular orifice, the opening of the coronary vein is situated, provided with a valve formed by a semilunar fold of the lining membrane, which partially closes its orifice, and prevents regurgitation into it.

Right ventricle.—The right or pulmonic ventricle forms the right anterior and inferior portion of the body of the heart. The greater part of it lies behind the sternum. On the left side of this bone it extends under the sternal extremity of the cartilages of the third, fourth, fifth, and sixth left ribs: on the right side of this bone a small portion of it extends under the cartilages of the fourth and fifth right ribs, close to the sternum. Its inferior margin is about on a line with the junction of the xyphoid cartilage and the sternum. The base of the right ventricle is connected to the auricle of the same side: its apex is a little above the apex of the heart: its anterior wall, which lies immediately under the sternum, is convex: its inferior wall, which rests upon the diaphragm, is flattened: its left or posterior wall is formed by the septum ventriculorum.

The parietes of the right ventricle are much thinner, its columnæ carneæ are smaller, and its cavity (as was first pointed out by Vesalius) is somewhat larger than that of the left ventricle: this has been supposed to depend upon its parietes being more yielding than those of the left, and from the blood accumulating in, and distending it after death; but accurate measurement has shown that its cavity exceeds the left in capacity. The right ventricle has not a regular or symmetrical shape—it is broader, but not so long as the left; the septum, which is convex towards its cavity, belongs more to the left than to the right ventricle: and, as Bell remarked, "the right ventricle seems to be wrapped round the left," while the latter alone forms the apex of the heart. The right ventricle ascends higher than the left; hence the orifice of the pulmonary artery is on a plane higher than that of the aorta.

The cavity of the right ventricle consists of two parts, as first particularly described by Lieutaud—viz. an *arterial* and an *auricular* portion separated from one another by a prominent bundle of muscular fibres, and by the largest division of the tricuspid valve. The arterial portion—the "*conus arteriosis*" of Wolff, the "*infundibulum*" of Cruveilhier—is very smooth upon its surface, leads towards the pulmonary artery and is prolonged upwards above the level of the rest of the ventricle; in it the current is established by the systole of the ventricle, which is continuous with that of the pulmonary artery. The auricular portion, on the other hand, is very irregular upon its surface, owing to numerous prominent bundles of muscular fibres (the carneæ columnæ) which exist here; it receives the blood directly from the right auricle, and into it there is a current through the auriculo-ventricular orifice until the closure of the tricuspid valve. Mr. Serle, in his account of the arrangement of the muscular fibres of the heart, describes the cavity of the right ventricle as consisting of three parts: an "auricular," a "pulmonary or ventricular," and an "apicial;" the pulmonary and apicial form the arterial portion of Lieutaud. "The pulmonary (according to him) is that formed by the fibres which arise from the root of the pulmonary artery at its entire circumference: the apicial channel is that which forms the channel of communication between the other two, and which extends to the apex."

The carneæ columnæ are very numerous in the auricular portion of the ventricle: many run from the apex towards the base, others cross them, leaving deep sulci between them; some of these fleshy columns are attached in their whole length, others only by their extremities, and others again only by one extremity, the opposite giving insertion to the chordæ tendineæ of the tricuspid valve: the latter, which are sometimes termed *musculi papillares*, are fewer in number than either of the other kinds.

At the base of the ventricle two orifices are situated: one (auriculo-ventricular orifice) communicates with the auricle on that side; the other is the orifice of the pulmonary artery: each is provided with a valvular apparatus. The auriculo-ventricular orifice is situated at the posterior and right side of the base of the ventricle; the pulmonary orifice is to the left side, immediately above the septum of the ventricles, on a plane anterior to, and three-quarters of an inch higher up, than the other.

Tricuspid valve.—The right auriculo-ventricular orifice is encircled by a valve, formed by a duplicature of the lining membrane, strengthened by fibrous tissue, which comes off from the margin of the orifice: the free extremity of this valve hangs down into the ventricle, where, by means of the chordæ tendineæ, it is connected to the carneæ columnæ, and so with the walls of the ventricle. This valve is termed tricuspid (three-pointed) by the older writers, triglochine (three-angled,) its free margin forming three principal divisions: the chordæ tendineæ are the tendons, the carneæ columnæ the muscles of this valve; the tendinous cords converge from the point where they are attached to the valve, and several of them are inserted into a single fleshy column: when the latter contract the tendinous cords are made tense; hence, as the fleshy columns contract during the ventricular systole, the valve is shortened, and prevented from being reversed.

Three principal divisions of the tricuspid valve are distinguished—an anterior, a right, and a posterior: the anterior division separates the auriculo-ventricular from the pulmonary orifice, and is supposed to prevent the blood from passing into the pulmonary artery during the dilatation of the ventricle; but (as was remarked by Senac long since) this can scarcely be necessary, because during the ventricular diastole the sigmoid valves close the arterial orifice; the second division of the valve lies to the right side; and the third, which constitutes the posterior division, lies behind. It would be more natural to consider this valve, like the mitral, as composed of two principal divisions: an anterior, which would include the anterior and right division, and a posterior, which would correspond to the posterior division: in describing the valve, however, it is convenient to consider it as composed of three curtains.

The anterior curtain is connected by its chordæ tendineæ principally with one large and long fleshy column, which has two roots: one of these roots springs from the anterior wall of the ventricle; the other, which runs transversely, is attached to the septum of the ventricles: this is the portion which Mr. W. King terms the "long moderator band." The right curtain is connected by its fleshy columns to the parietes of the ventricle, not to the septum: two fleshy columns are attached in front; the others, which are much shorter, are attached to the posterior wall of the ventricle. The fleshy columns of the posterior division of the valve are much shorter than those of either of the others, and some of its tendinous cords are inserted without the intervention of any fleshy columns: they are all inserted into the septum.

A single slender tendinous cord, not proceeding from any fleshy column (which, however, is absent in some hearts,) is attached by one extremity to the *anterior* division of this valve, sometimes near where the chordæ tendineæ join the fleshy column, more frequently to the fleshy column itself, either near its base or apex, from which it runs towards the right wall of the ventricle, into which it is inserted, or to the base of the fleshy columns of one of the other divisions of the valve. The action of this tendinous cord will be to prevent the anterior curtain of the valve from being applied to the orifice when the ventricle is much distended; and from its insertion into the yielding wall of the ventricle, the more the ventricular cavity is distended the more open will it keep this curtain of the valve; while when the ventricle is not over-distended it will not interfere with the perfect action of the valve.

Pulmonary orifice.—The orifice of the pulmonary artery is situated on a plane about three-quarters of an inch higher than the auriculo-ventricular orifice, to its left side and more anteriorly; the surface of the ventricle from which it arises, and below this point, is perfectly smooth. The pulmonary orifice lies pretty nearly on a line with the junction of the cartilages of the third ribs with the sternum, very little to the left of this bone; it has a circular shape, is smaller than the auriculo-ventricular orifice, and is provided with a valvular apparatus at the point where the artery joins the ventricle, formed of folds of the lining membrane, strengthened by fibrous tissue.

Sigmoid valves.—The valves at the orifice of the pulmonary artery are three in number; they are analagous to the valves at the orifice of the aorta, but are thinner and more delicate. Morgagni gave them the name *sigmoid*, while those at the aortic orifice he named *semilunar*: these terms are, however, nearly indiscriminately used. The sigmoid valves have a crescentic shape as they lie against the walls of the artery: they are attached at the point where the pulmonary artery joins the ventricle, and this point or their base corresponds to a line across the inferior margin of the cartilage of the third ribs. One of these valves is anterior, another posterior or to the left side, and the third to the right side; each is attached by its convex margin, the concave or free margin being loose: their edges are a little thicker than the other parts, and in the centre of each near the margin a very minute nodule is seated, though in some instances scarcely a trace of it is to be found.

The sigmoid valves, when the blood is passing out of the ventricle, lie against the walls of the pulmonary artery and present no impediment to its passage; when the ventricle ceases to contract, the blood in the artery above gets behind them, they fall down, close the orifice, and prevent regurgitation into the ventricle.

Sinuses of the pulmonary artery.—Behind each sigmoid valve is a little pouch or sinus, where the coats of the vessel appear to be thinner: these are the sinuses of the pulmonary artery; their use evidently is to enable the blood to insinuate itself behind the valves when the ventricular systole ceases, by which they are pressed down, the orifice closed, and regurgitation into the ventricle prevented. These sinuses also allow a space for the sigmoid valves to lie back in during the ventricular systole, by which the outlet of the artery is rendered perfectly smooth and even, as the blood is passing from the ventricle into the pulmonary artery.

Description of the heart, continued—Left chambers of the organ—Left auricle—Left auriculo-ventricular orifice—Left ventricle—Mitral valve—Aortic orifice—Semilunar valves—Corpora Arantii—Sinuses of Morgagni—Muscular tissue of the heart—Nerves and blood-vessels of the heart—Endocardium.

LEFT CHAMBERS OF THE HEART.

Left auricle.—The left auricle occupies the upper, the posterior, and the left side of the base of the heart; it has an irregular square form, the transverse exceeding the vertical diameter; its parietes are thicker, and its cavity is smaller than that of the right auricle; its interior is smooth; the muscular fibres in it do not leave inter-spaces between them, and musculi pectinati are fewer. It consists, like the right, of a sinus, and an auricular appendix; the former receives the blood from the four pulmonary veins, and orms its principal bulk; it occupies the posterior part of the base of the heart, facing the bodies of he dorsal vertebræ, so that no part of it is visible when the pericardium is laid open. The auricular appendix (which is longer and narrower han that of the right side, and has its edge in general more deeply notched, or serrated,) is ituated at the lower and left side of the auricle, below the orifices of the left pulmonary veins; it comes forward at the left side of the base of the ventricle, where it lies to the left of the root of the pulmonary artery, and eventually a little in front of it; it is the only part of the left auricle which is visible when the pericardium is laid open, and will be found immediately under the cartilage of the third left rib. At the point where the auricular appendix joins the sinus of the auricle, there is a narrowing or contraction of the diameter of the cavity: this is sometimes termed one of the orifices of the auricle, but incorrectly, because the sinus and appendix form but a single cavity.

In the interior of the left orifice five orifices are seen; the largest is the auriculo-ventricular orifice, the other four belong to the pulmonary veins; the latter open, one immediately above the other, at each side of the sinus, the two right at its posterior and right side, the two left at its posterior and left side. The two upper orifices are larger than the lower, and sometimes the two pulmonary veins of the left side open by a common orifice, sometimes there are three veins on the right side. The right wall of the oracle is formed by the septum auricularum; this, which is sometimes described as the base of the auricle, is convex towards the left side; in it we observe the depression which marks the sight of the foramen ovale.

Left auriculo-ventricular orifice.—This orifice, which forms the communication between the auricle and ventricle, is situated in the floor of the auricle; it has an elliptic, or more correctly, a crescentic shape, the long diameter being nearly transversely; it is smaller than the corresponding orifice of the right side; its margin is smooth, and consists of dense, white, fibrous, or tendinous tissue. The left auriculo-ventricular orifice is on a plane posterior to and to the left side of the tricuspid orifice, but nearly on the same level, as the heart lies in situ: it is situated behind the sternum, and upon a line with the junction of the cartilage of the fourth rib with that bone.

Left ventricle.—The left, the aortic, or systemic ventricle, forms the left and posterior part of the body of the heart; it has a conical form, the base above where it joins the auricle, the apex below where it forms exclusively the apex of the heart; its parietes are convex externally, and concave internally, equally upon the side of the septum, as in its left and posterior wall, so that the septum seems to project into the cavity of the right ventricle. The walls of the left ventricle are strong, thick, and muscular, about three times the diameter of those of the right ventricle, as was first pointed out by Riolanus; they preserve, consequently, their convex form after the cavity of the ventricle is emptied, while the parietes of the right ventricle collapse under similar circumstances. The left ventricle is longer than the right, but its cavity is smaller, and its carneæ columnæ are much thicker and stronger.

A small portion only of the left ventricle is seen when the pericardium is laid open; this is to the left of the sternum, extending from the cartilage of the third left rib, to the interspace between the fifth and sixth left ribs, near where the cartilage joins the body of these ribs. The appendix of the left auricle, which comes forward directly beneath the cartilage of the third left rib, surmounts the left ventricle here.

In the cavity of the left ventricle, as in that of the right, two parts are distinguished, an arterial and an auricular portion, separated from one another by the right or anterior division of the mitral valve. The former is the smooth surface leading to the aortic orifice; it is smaller than the corresponding portion of the right ventricle, and is bounded on the right side by the upper part of the septum of the ventricles, and posteriorly by the anterior or right curtain of the mitral valve. The auricular portion forms the larger part of the ventricular cavity: it communicates directly with the auricle on the same side.

The auriculo-ventricular and the arterial orifices lie much nearer each other on the left than on the right side of the heart, being only separated by the right or anterior curtain of the mitral valve. The aortic orifice is on a plane above, anterior to, and to the right of the auriculo-ventricular orifice: the right or anterior division of the mitral valve which separates them is supposed to prevent the blood from entering the aorta while the ventricle is filling; but as the semilunar valves are closed at this period, it can scarcely have this use.

Mitral valve.—From the margin of the tendinous ring which surrounds the left auriculo-ventricular orifice, a valve composed of a double fold of the lining membrane, enclosing tendinous fibres, proceeds, the free surface of which hangs down into the ventricle; this valve is analogous in office to that of the right side, but is larger and stronger in all its parts: its chordæ tendineæ are stronger, and its carneæ are stronger, and its carneæ columnæ are thicker.

This valve has more strictly two divisions than the tricuspid, and is properly termed *bicuspid* from this circumstance: one of these is anterior, the other posterior; the former being more to the right side is sometimes termed the right division, the latter the left. Vesalius compared this valve to a bishop's mitre, "quas mitræ episcopali non admodum inepte contuleris," and the name *mitral* has been almost invariably applied to the valve since.

The anterior or right division of the mitral valve is the larger; it ascends higher than the other, reaching to the base of the posterior and right semilunar valves of the aorta: its curtain forms in a great measure the septum between the aortic and the auriculo-ventricular orifices, so that when we remove it the two orifices seem almost to constitute but one; indeed, it was formerly termed the valvular septum of Lieutaud from this circumstance. The carneæ columnæ of the mitral valve are all attached to the posterior wall of the ventricle: those of the anterior curtain arise from opposite sides of the posterior wall, each by two strong columns: the tendinous cords connected with them run towards one another, so that if continued along the curtain of the valve they would cross each other. The carneæ columnæ of the posterior division of this valve are three in number; they are shorter, broader, and less cylindrical than the fleshy columns of the anterior division. The strength of the chordæ tendineæ of this valve, notwithstanding their tenuity, is very remarkable: Senac tested it by isolating a single one, and attaching to it a four pound weight, which it supported for some time.

Aortic orifice.—The aortic orifice, like the pulmonary, has a circular shape; it is situated at the upper and right corner of the base of the ventricle, behind the orifice of the pulmonary artery, and on a plane lower down. It lies anterior to, higher up, and to the right side of the auriculo-ventricular orifice, but very close to it; these two orifices being merely separated, as I have said, by the right or anterior curtain of the mitral valve.

Semilunar valves.—The aortic orifice is provided with three valves, named semilunar by Morgagni, which are attached by their convex margin at the point where the aorta and left ventricle become continous; their concave or free margin looks upwards. One of these valves is anterior, another posterior, and the third inferior: they are situated behind the sternum, towards the left side of this bone on a line with the space between the cartilages of the third and fourth ribs; their free edge corresponds (M. Gendrin observes) to the base of the pulmonary valves; a line drawn across the inferior margin of the third rib corresponds to the free border of the aortic valves, and to the base of the valves of the pulmonary artery.

The semilunar valves of the aorta resemble the valves of the pulmonary artery in almost every respect; but are thicker and stronger. They consist of duplicatures of the lining membrane, strengthened by tendinous bands; of these bands; one runs along the free margin of each valve, another along its base, and another, which is broader, runs upon each side of the corpus Arantii, and takes a semicircular course from this body to the attached margin of the valve. These tendinous bands have been recently described by M. Monneret as muscles: the action of one set of fibres (according to him) is to raise the valve, the other set are antagonists, and serve to depress them. But as the semilunar valves are elevated and depressed mechanically by the flux and reflux of the blood, it is not easy to perceive, Magendie observes, what purpose muscles placed between the membranous folds of these valves could serve.

Corpora Arantii.—Near the centre of the margin of the free edge of each valve a little fibro-cartilaginous body is seated; these are usually termed "corpora Arantii, after Arantius, a pupil of Vesalius, who first accurately described them, though they had been noticed previously by Vidus Vidus; sometimes they are termed "corpora sesamoidea," or "noduli Morgagni." These little bodies are more distinct and larger in the semilunar valves of the aorta than in those of the pulmonary artery; their use is said to be to strengthen the central point where the valves meet, where the pressure is considerable, and the resistance least; as well as to fill up the little space which would be left in the centre when the valves fall down: but as these little bodies are not seated at the very margin of the valves, they could hardly effect the latter object, which, indeed, is unnecessary, as it has been shown that these valves slightly overlap one another in the healthy subject. The use of the corpora Arantii appears to me to be to serve as points of attachment for the tendinous bands already mentioned, by which the valves are strengthened; without some provision of this kind these valves would much more frequently become reversed and permit regurgitation than they do.

Sinuses of Morgagni.—Behind each semilunar valve the parietes of the artery are dilated, and a little pouch or sinus is formed, where the parietes of the artery are thinner than in other parts; these are the sinuses of Morgagni, or the lesser sinuses of the heart. They are better developed in the aorta than in the pulmonary artery, and in old age than in young subjects. In these sinuses the orifices of the two coronary arteries are seen, and Dr. Chevers distinguishes those from which the right and left coronary arteries arise, by the names *right* and *left*; the third he calls the *intermediate* sinus. The disposition of the fibres of the selerous coat of the aorta in these sinuses, by which the parietics are strengthened, and the attachment of the valve secured, has been well described by him. The use of these sinuses is similar to that of the same parts at the origin of the pulmonary artery; they allow a space for the blood to insinuate itself behind the valves when the ventricular systole ceases, by which they are pressed down and the orifice closed; and they afford a space for the semilunar valves to lie back in during the systole of the ventricle, by which the channel along which the blood passes is rendered perfectly smooth.

The aorta is connected to the left ventricle by the endocardium within, and by the serous and fibrous layers of the pericardium externally, which are continuous with one another in the heart and artery. When these are removed the junction of the fibrous membrane of the artery with the muscular tissue of the heart is seen to be by three crescentic prolongations or festoons, each of which has its convex margin towards the ventricle, and between each is a small triangular interval, the base of which corresponds to the base of the ventricle.

The place where the aorta joins the ventricle is marked by a tendinous ring (*zona tendinosa*:)

o semilunar valves of the aorta are situated at is part, the convex margin of each being tached opposite to the convex margin of the escentic prolongation above described, and each ceiving tendinous fibres from this ring.

Muscular tissue of the heart.—The muscular ssue which forms the principal bulk of the heart situated between the endocardium on the one and, and the pericardium on the other, and liffers from the muscles of animal life in several espects; the latter are connected together by ellular tissue, and with the naked eye are seen o consist of bundles of fibres, which the former nterlace and cross in different directions: under the microscope, also other differences are observed,—as the granular appearance of the fibres, and the less distinctness of the transverse striæ. The substance of the heart contains a larger amount of muscular fibre for its size than any other part, and its tissue is compact, firm, and close; for this reason the heart of animals, when cooked, cuts uniformly smooth in every direction, and "eats short, not offering that elastic resistance which other muscles do during mastication."

The use of the cellular tissue which connects together the fibres of the muscles of animal life, and which forms their sheaths, appears to be in a great measure to retain the muscular fibres within their proper sphere of action, and to strengthen them. In the heart, cellular tissue was supposed to be less necessary, in consequence of the manner in which the muscular fibres themselves are arranged; but Dr. Robert Lee[*] has recently shown that the heart is provided with a fascia which binds together and gives support to the muscular fibres in the same way as the fascia which invests the muscles of animal life. This, which he terms the "*cardiac fascia*," lies immediately under the true serous coat, and, after investing every part of the auricles and ventricles, it sends prolongations from its under surface, which surround the bloodvessels and nerves, forming sheaths for them, and accompanying their branches between the muscular fasciculi through the entire walls of the heart, from the surface, to the lining membrane, investing and binding all the parts together in the strongest possible manner, and giving firmness and strength to the organ.

A vast deal of pains, time, and labour, have been expended by anatomists in endeavouring to unravel the course of the muscular fibres of the heart; in many instances "they have succeeded (it has been observed) only in giving unintelligible descriptions." Recently Mr. Searle has undertaken the task: his account of the arrangement of the muscular fibres of the heart is contained in the Cyclopædia of Anatomy and Physiology; his description would, however, be utterly unintelligible without the figures with which his paper is illustrated; and, even with the assistance of these, the peculiar manner in which the bands, fasciculi, and layers, which enter into the formation of the heart, are arranged, could scarcely be understood without quoting his description at length.

It will be sufficient here to observe that each ventricle has its own distinct sets of fibres, which form its sac; that another set of fibres surrounds, encloses, and unites together the two ventricles; that in the left ventricle six layers of fibres have been distinguished, in the right but three, which are arranged into a superficial, a middle, and an internal set; that the fibres are disposed in a spiral direction, "some winding round and round the ventricle," "some taking a larger sweep, and surrounding both ventricles;" that they interlace with one another, and that some are continuous with the carneæ columnæ in the interior of the ventricle.

The septum is described by Mr. Searle as consisting of three layers—a left, a middle, and a right; the two former belong properly to the left ventricle; the right layer exclusively to the right ventricle.

In the auricles the fibres are disposed in two layers: its fibres "arise chiefly from the tendinous margins of the annulus venosus and annulus arteriosus." The peculiar shape of the appendices depends upon the manner in which the fibres are arranged, as also the appearance known under the name of the musculi pectinati. The fibres of the right auricle are prolonged so as to form the outer part of the wall of the left auricle, which, as it receives additional bands of fibres, is necessarily thicker than the right auricle. The septum of the auricles receives fibres from three sources—superiorly, in its middle, and inferiorly.

The cause of the conical form of the ventricular portion of the heart is explained by Mr. Searle as follows:—"Along the central cavity of the left ventricle are placed the two carneæ columnæ, the length of which is equal to the lower three-fourths of the length of the axis of this cavity. The fibres of these two bodies radiate, and the radiated fibres wind round the axis closely upon them. By this radiation, instead of all the fibres passing longitudinally, which would have preserved these bodies in a state of equal thickness throughout their length, they are progressively parting with their fibres, retaining but a few, which, by their longitudinal course, reach the apex; consequently these columns gradually diminish, becoming pyramidal, and form together an inverted cone; and as the fibres in well-formed hearts wind closely round these columns, the entire ventricle gently assumes the form of a cone; and although the right ventricle is, as it were, appended to the left, yet it is not so connected to it as to destroy the conical form, but, on the contrary, in such a manner as to form a concave parabolic section of a cone, which adapts itself to the gentle cone of the left ventricle. The two ventricles thus united assume the form of the more rapid cone of the heart."

Nerves of the heart.—The heart receives its nerves from both the ganglionic and cerebro-spinal system; the former are derived from the three cervical ganglions of the great sympathetic, and sometimes from the first dorsal ganglion; the latter are derived from the par vagum or pneumogastric nerve, and from its branch, the recurrent or inferior laryngeal nerve.

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[*] Philosophical Transactions, 1849.

The three cardiac nerves upon each side, which are termed respectively the superior, the middle, and the inferior, come from the superior, the middle, and the inferior cervical ganglia of the great sympathetic. The superior cardiac nerve communicates with the middle and with the pneumogastric nerve; the middle communicates with both the superior and inferior, as well as with the pneumogastric and recurrent; the inferior communicates with the middle and with the recurrent nerves.

The cardiac ganglion receives the superior cardiac nerves on each side, and a branch from the pneumo-gastric, and sends branches to the cardiac plexuses. The great cardiac plexus is formed by the middle and inferior cardiac nerves from opposite sides; it receives branches also from the pneumo-gastric and recurrent: it lies behind the ascending portion of the arch of the aorta, in front of the trachea, near its bifurcation. From it, lesser plexuses are formed, termed the anterior and posterior cardiac or coronary plexuses, which accompany the coronary vessels, supply the substance of the heart, and communicate with the pulmonary plexuses.

The experiments of Volkman go to prove that the movements of the heart are independent both of the brain and spinal cord, and that its movements "depend upon the ganglia and the nerve fibres contained within itself; whilst centripetal fibres of these ganglia are found in the vagus, sympathetic, and in the spinal cord." It is to Dr. Robert Lee, however, that we are principally indebted for our knowledge of the ganglia and plexuses of the heart,—a subject which he has investigated with a patience and skill deserving of every praise. He has shown[*] that every artery distributed throughout the walls of the heart, and every muscular fasciculus, is supplied with nerves, upon which ganglia are formed. The number of these ganglia may be estimated by the fact that as many as ninety are visible upon the nerves on the anterior surface of the heart.

The following conclusions, under this head, are given by Dr. Lee:—

1. That the blood-vessels, and the muscular structure of the auricles and ventricles of the heart, are endowed with numerous ganglia and plexuses of nerves, which have not hitherto been described, or represented in the works of anatomists.

2. That the nervous structure of the heart, which are distributed over its surface, to the apex and throughout its walls, to the lining membrane and columnæ carneæ, enlarge with the natural growth of the heart before birth, during childhood and youth, until the heart has attained its full size in the adult.

3. That the ganglia and nerves of the heart enlarge like those of the gravid uterus when the walls of the ventricles are affected with hypertrophy.

4. That the ganglia and nerves which supply the left auricle and ventricle in the natural state are more than double the size of the ganglia and and nerves distributed to the right side of the heart.

Blood-vessels of the heart.—The heart, although always more or less full of blood, cannot appropriate any of the fluid which passes through its cavities to its own nutrition; but like every other organ, has peculiar vessels set apart to supply it: these are the two coronary arteries, which come off at the sinuses of Morgagni. The principal division of the anterior or left coronary artery lies in the anterior longitudinal groove. The posterior or right coronary artery is lodged in the circular or auriculo-ventricular groove, and a large branch of it runs down the posterior longitudinal groove. These vessels inosculate freely with one another, and the grooves in which they run mark the site of the septum of the ventricles, as well as the line of separation between the auricles and ventricles.

The veins of the heart accompany the arteries, and end in a single trunk, which opens in the right auricle, between the Eustachian valve and the right auriculo-ventricular orifice. A valve, formed by a semilunar fold of the lining membrane of the heart, partially closes the orifice here, and prevents regurgitation into it.

Endocardium.—The interior of the cavities of the heart is lined throughout by a very fine transparent and delicate membrane, named by M. Bouillaud, the "endocardium," which is to the internal surface of the heart what the serous layer of the pericardium is to its external surface. This membrane is very smooth, highly polished, and analogous in almost every respect to serous membrane: it is continuous with the lining membrane of the large vessels, both arteries and veins, which open into the heart, as well as with the arteries and veins of the heart itself; it lines every part of the interior of the cavities, of both the auricles and ventricles, covers the chordæ tendinæ and carneæ columnæ, and is reflected upon itself at the arterial and auriculo-ventricular orifices, to assist in forming the valves.

The endocardium is connected to the tendinous and muscular structures underneath by means of very fine cellular tissue, to which it is so adherent that it can only be detached by the scalpel in small patches. The adhesion is closer about the valves than at any other part, owing to certain fibrous expansions, which, proceeding from the orifice, are continued under the endocardium upon the curtains of the valves, particularly upon the left side, as well as towards the auricular and ventricular cavities.

The endocardium, in the right auricle and right ventricle, is continuous with the lining membrane of the venæ cavæ, and thus with the venous system throughout the body. The endocardium in the left auricle and left ventricle is continuous with the lining membrane of the aorta, and thus with the arterial system throughout the body. This helps to explain why morbid changes are so much more frequent in the left cavities of the heart than in the right; as arterial tissue is well known to be very subject to disease, while the coats of veins are comparatively exempt.

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[*] Philosophical Transactions, 1849.

According to M. Bouillaud, the endocardium is somewhat more delicate and fine in the right cavities of the heart than in the left, and in the ventricles than in the auricles; and it is thickest about the arterial and auriculo-ventricular orifices. According to M. Bizot,* this membrane in early life has the same transparency, thickness and consistence, in every part of the interior of the heart. Subsequently, a slight opacity begins to make its appearance in the vicinity of the semilunar valves of the aorta, and gradually increases, but is always most marked at the point at which it was first observed. As the membrane becomes opaque it appears also to become slightly thickened; but this is not due to the presence of a false membrane. It is a simple opacity, and appears to be analagous to the white patch upon the visceral layer of the pericardium. This appearance is only observed upon the left side of the heart. M. Bizot has has never found it upon the right side; and age appears to have a marked influence upon its development; for it is very rare under puberty, and very frequent in old age.

The following table given by M. Bizot shows the comparative frequency of this opacity of the endocardium in the two sexes, and at different ages:—

Age.	Male.		Female.	
	Number of subjects.	No. of examples.	No. of subjects.	No. of examples.
1 to 15	11	1	23	1
16 „ 39	26	9	30	10
40 „ 59	18	6	15	10
60 „ 78	10	8	12	10

The important place which the endocardium occupies is shown by its being (as M. Bouillaud observes†) the *point de départ* of the most frequent and most serious lesions of the valves and orifices of the heart. Like the pericardium, it is liable to inflammation, but this is usually limited to the portion of the membrane which covers the valves or lines the orifices; and is, in a great measure, confined to the left side of the organ. The changes produced by disease in the valves and orifices of the heart will be considered under the head of Valvular Disease.

The pericardium—Fibrous layer of—Serous layer of—Cardiac fascia—White patches on visceral layer of pericardium—Seat of—Nature and causes of—Conclusions respecting—Dimensions of the heart—Normal size of the organ—Length of the heart—Breadth of the heart—Conclusions respecting the size of the heart—Weight of the healthy heart. Absolute weight of the organ. Ratio of the weight of the heart to the entire body. Comparative weight of different parts of the heart to each other. Conclusions respecting the weight of the heart.

The pericardium.—The pericardium belongs to the class of fibro-serous membranes, and consists of two layers, an external fibrous and internal serous. The fibrous layer is strong and resisting, though having but little thickness: it forms what is called the sac of the pericardium, and encloses the heart and the origin of the large vessels which come off from its base. The serous layer is thin and delicate in comparison: it closely invests the heart, covers the origin of the large vessels, and is then reflected upon the internal surface of the fibrous layer, which it lines throughout. Thus, as is the case with other serous membranes, the heart, although invested by the pericardium, is not contained in its cavity.

The pericardial sac has a pyriform shape, the base below, the apex above; exactly the reverse of that of the heart. Its base is on a line with the upper part of the xyphoid cartilage; its apex a short distance above the origin of the large vessels, and generally on a line with the articulation of the cartilage of the second ribs with the sternum. I have, however, found it to extend, in a healthy subject, as high as the level of the articulation of the first ribs with the sternum. Its apex is higher upon each side of the aorta than immediately opposite to that vessel. The pericardial sac is wider in the centre than at its base, and here it extends more to the left side. Its widest part is on a line with the greatest transverse diameter of the heart.

Capacity of the pericardium.—The capacity of the pericardial sac is somewhat greater than the volume of the heart; and, as its cavities are never all distended at the same moment, there is always abundant room for the apex and body of the organ to move freely in it. For the same reason, effusion of fluid to a moderate extent may take place into the cavity of the pericardium without interfering much with the heart's movements, provided it is effused slowly and gradually. On the other hand, even a moderate amount of fluid suddenly effused will be attended with formidable symptoms, because the fibrous nature of this membrane does not permit of its yielding suddenly. In chronic cases of disease, however, the pericardial sac is capable of becoming enormously dilated, as we shall afterwards see.

The actual capacity of the pericardium has been endeavoured to be determined by injecting fluid into and forcibly distending its sac. Dr. Sibson, in a recent number of the London Journal of Medicine, has given the following table of the results of some experiments made by him:—

Boy æt. 6, pericardium injected to distention, held	6 oz.
" 9,	6 oz.
" 13, about	6 oz.
Adult male	15 oz.
Male aged 50	22 oz.
Adult female (heart enlarged)	26 oz.

" From these and other observations, (Dr.

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* Mem. de la Soc. Med. d'Observation, tome i.

† Traité des Maladies du Cœur, 2nd edition.

Sibson says) it may be inferred that in the adult, when the heart is healthy, the pericardium, when fully distended, can contain from twelve to fifteen ounces of fluid." "It is worthy of remark (he adds) that the right cavities of the heart in the adult male, when distended, hold the same quantity of fluids as the pericardium.

Fibrous layer of pericardium.—The fibrous layer of the pericardium is dense and strong, and is composed of tendinous fibres, some of which run vertically from the base towards the apex, others cross each other in various directions. Its tissue is semi-transparent, permitting the heart to be seen through it. It is very intimately united inferiorly to the central tendinous aponeurosis of the diaphragm: the fibres of each (as Lancisi observed) mix, and are confounded with one another: so that the pericardium seems as if it were a prolongation of this aponeurosis. It is also connected with the fleshy portion of the diaphragm on the left side; but the adhesion here is less intimate. Superiorly the fibrous layer of the pericardium is closely united to the trunks of the large vessels which come off from the base of the heart. It gives them sheaths; and, after accompanying them for a short distance, it becomes continuous with the thoracic fascia. The inferior cava alone receives no fibrous sheath from it. Anteriorly a small portion of its surface is only separated from the sternum by cellular tissue. Laterally it is connected with the pleura on each side, the phrenic nerve on the left side being interposed. Posteriorly, the pericardium, which is of small extent compared with its anterior surface, lies in front of the posterior mediastinum, being separated from the bodies of the dorsal vertebræ by the œsophagus and descending aorta.

The fibrous layer of the pericardium does not form a complete capsule for the heart; it is deficient inferiorly, where it is replaced by the central tendinous aponeurosis of the diaphragm; the reflected serous layer, which is attached to this part of the diaphragm, forming its capsule here. Owing to its density and strength, the fibrous layer of the pericardium serves both to support and to limit the motion of the heart; while it retains it in situ. From its firm attachments above, below, and laterally, if, as not unfrequently happens from disease, the opposed serous surfaces become adherent to one another, the motions of the heart must be, in a certain degree, interfered with.

Serous layer of pericardium.—The serous layer of the pericardium which invests the heart is thin and delicate compared with the fibrous layer. It consists of two layers, a proper serous and a fibrous layer; the latter forms the capsule of the heart; the former, after covering the heart, ascends, for an inch and a half to two inches, upon the aorta, and upon the pulmonary artery as high as its bifurcation, where it is reflected upon internal surface of the pericardial sac. Hence the greater portion of the ascending part of the arch of the aorta is said to be within the sac of the pericardium; and hence aneurism of this part of the vessel occasionally bursts into it. Where the serous layer lines the sac of the pericardium it is very intimately adherent to it; where it covers the origin of the large vessels it is much less so. Inferiorly, where the fibrous portion of the pericardial sac is deficient, the serous layer lines the central aponeurosis of the diaphragm.

Cardiac fascia.—The serous layer of the pericardium, which invests the heart, was always described as a single membranous layer, until Dr. Robert Lee* demonstrated two layers in it, which are connected together by cellular tissue. The outermost of these layers is the proper serous coat; the inner layer, from its structure and function, and from the important office which it performs, Dr. Lee considers may be regarded as the fibrous membrane or fascia of the heart.

This expansion "is possessed of great strength and firmness. It is glistening, semitransparent, and resembles in all respects the aponeurotic expansions, or fasciæ covering muscles, in other parts of the body." "It is much stronger over the ventricles than the auricles, and it adheres so firmly to the muscular substance underneath that its separation cannot be effected without tearing up some of the muscular fibres to which it is attached." "From the inner surface of this fascia innumerable strong fibres pass to the blood-vessels, nerves, muscular fasciculi, and adipose matter, which accompany and surround all the blood-vessels and nerves; and they are interlaced together so as to form a peculiar stroma, if it may be so termed, of considerable thickness, between the fascia and all the various structures beneath, which it invests and binds together in the strongest possible manner. These fibres form a complete sheath around all the arteries, veins, and nerves, on the surface of the heart, and accompany them as they dip down between the muscular fasciculi, to which their branches are distributed throughout the entire walls of the heart, from its surface to the lining membrane."

"The cardiac fascia," Dr. Lee observes, "is obviously one of the principal causes of the firmness and strength of the central organ of the circulation, as it binds together into one mass, and gives support to the muscular fibres, like the fascia which invests other muscles." "The cardiac fascia is to the heart, I believe, what the external fibrous coat is to an artery; and it must have nearly the same effect in preventing dilatation and rupture of the ventricle during violent exertion." "The feeble serous covering of the heart can possess little influence, and add nothing to the strength of the parietes; and probably, but for the fascia now described, the heart would often yield in all directions, especially at the apex. In a physiological point of view, it therefore has appeared to me that this fascia of the heart is one of its most important strictures."

"In a pathological point of view," Dr. Lee observes, "the cardiac fascia is perhaps not less worthy of notice. Muscular structure, it is well known, is not liable to attacks either of common or of specific inflammation. It is impossible to avoid suspecting that rheumatic inflammation of the heart has for its principal seat this dense fibrous membrane lying between the serous and muscular coats of the heart, and that attacks of rheumatism of the heart do not commence primarily in the muscular structure."

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* Philosophical Transactions, 1848.

The opposed serous surface of the pericardium are very smooth, and constantly lubricated: hence in the normal condition of the parts they glide over one another during the motions of the heart without producing sound. If, however, as is not unfrequently the result of disease, these surfaces become rough or uneven, increased friction must take place between them during the heart's motions, and sounds will be developed which become audible when the ear or the stethoscope is applied to the parietes. These constitute the pericarditic friction sounds, afterwards to be considered.

Owing to the intimate connection of the pericardium inferiorly with the diaphragm, it must follow the movements of the latter; and from its attachments above and below, its shape and state of tension must be somewhat different during inspiration and expiration; while if much fluid be effused into its sac, not only will the movements of the heart, the ascent of the diaphragm, and the expansion of the lungs, be more or less interfered with, but the lungs will be pushed aside, a larger surface of the pericardium will come in contact with the parietes of the chest in front, and the region of the heart's superficial dulness on percussion will be increased in proportion. The effect of the forcible distension of the pericardium, in Dr. Sibson's experiments, was to make the central tendinous aponeurosis of the diaphragm convex towards the abdomen, and to lower this part about one inch.

White patches on pericardium.—Nothing is more common than to find upon the serous layer of the pericardium, where it invests the anterior surface of the heart, a white patch, of variable size and shape: indeed, it is so frequent, and it is so often found in hearts which in other respects are perfectly healthy, that it has been regarded by some as a natural appearance.

The anterior surface of the right ventricle is its most frequent seat: occasionally it is observed upon the surface of the left ventricle, or upon both ventricles, and occasionally upon the auricles. Frequently only one exists, sometimes several are seen upon the same heart; they have an opaque white colour; the shape is very variable; it is often somewhat circular or oval, occasionally more or less linear, and extending in the line of the coronary vessels. The size of these patches varies from a fourpenny piece to a crown, or even larger: when one only is present, it is usually larger than when several occur upon the same heart. They are much more common in the adult than in early life, but have been observed in the infant under three months; they are larger and better marked in advanced life, and they are much more common upon the male than the female heart.

Seat of the white patches.—Some difference of opinion exists among pathologists as to the exact seat of these opaque patches, some placing it upon the free surface of the pericardium, others upon its under surface, and others in the proper tissue of the membrane. Thus Baillie, Laennec, Louis, and Todd,* state that these opaque patches can easily be dissected or peeled off from the visceral layer of the pericardium, leaving this membrane entire. Corvisart, on the other hand, says, that these patches are seated upon the under surface of the membrane, and that they cannot be dissected off without bringing the pericardium with it. Dr. Hodgkin says, he has met with a few instances where they might be dissected off; but in by far the greater number of cases these patches depend on a deposit on the attached surfaces. Mr. T. W. King considers the actual seat of the deposit to be the proper tissue of the serous membrane. Mr. Paget† says, these patches are "generally easily stripped off; but in no case after they are organized can they be separated from the subjacent tissue without dividing numerous connecting filaments, and leaving the surface from which they are removed flocculent and shreddy."

Nature and causes of.—A similar diversity of opinion exists among pathologists respecting the nature and cause of these opaque patches. By some they are referred to inflammation, and supposed to be always the result of partial pericarditis. Mr. Paget, who advocates this view exclusively, observes, "with these spots there almost constantly coincides some adhesion by organized lymph between adjacent parts of the pericardial membrane." "The adhesions generally consist of slender threads passing across the furrow between the aorta and vena cava superior, or between the aorta and pulmonary artery at some little distance from their connection with the heart." In 40 cases noted by Mr. Paget, in which white patches were found upon the heart, 35 presented abnormal adhesions, or their remains.

If these opaque patches were always the result of inflammation, pericarditis, in a latent form, must evidently be a much more frequent disease than is commonly supposed; but as in the majority of cases the serous membrane at the part preserves its smooth and glistening appearance, the opacity can hardly be due to lymph deposited upon it; besides, adhesions between the visceral and the reflected layers of the pericardium, instead of being very rare in connection with these patches, ought to be frequent, if they were always the result of the deposition of lymph.

Other pathologists regard these opaque patches as the effect of attrition between the surface of the heart and parietes of the thorax; as they are found most frequently upon the anterior surface of the right ventricle. Dr. Hodgkin‡ is of opinion that pressure is the cause, and that they are the result of a kind of inflammation originating in attrition and irritation. Mr. T. W. King[*] says, "the situation of these patches wherever they occur, implies to my mind a degree of attrition at the part more than belongs to the pericardium generally," and he suggests the name "patches of attrition," or "patches of distention" for them. It militates, however, against this theory, that these white patches are not unfrequent upon parts of the heart where attrition cannot take place.

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* Cyclopædia of Anat. and Physiology.
† Med. Chir Trans. vol. xxiii.
‡ Lect. on Morb. Anat. of Serous Membranes.

Other pathologists are of opinion that these patches are not to be regarded as a pathological phenomenon, because they are found in the most healthy hearts, and where the patient has never laboured under any affection referable to the heart; and because similar opaque patches are found upon other viscera which are covered by serous membrane; as the liver, intestines, &c.

M. Bizot, whose researches have tended to elucidate many doubtful points connected with the normal anatomy of the heart, has shown[†] that these white patches are of two descriptions, one a morbid secretion of two serous membranes, probably consecutive to inflammation; the other is not a product of inflammation, but appears to be in some way connected with the progress of age.

The first variety, which is the rarest, is found indifferently upon every portion of the pericardium covering the auricles and ventricles; it has its seat upon the free surface of the membrane, and can be detached without difficulty from the serous membrane underneath, which preserves its natural appearance.

The second variety is usually found upon the anterior surface of the right ventricle, and has its seat in the serous membrane itself, which undergoes a slow transformation, becomes slightly thicker in the centre, and gradually loses its transparency; if we try to detach the serous membrane at the part, the opaque patch is removed with it. This is the most frequent variety; M. Bizot states that in 156 subjects he found it 45 times; it is much more frequently met with in the male than in the female: in 72 males it occurred 31 times, in 84 females only 14 times. Mr. Paget's researches likewise show that these patches are more common in the male than the female.

The anterior surface of the right ventricle is the most frequent seat of this variety. In 45 instances, noted by M. Bizot, it occupied the centre of the anterior surface of the right ventricle in 20; in 18 it occupied also the anterior surface of the left ventricle; in 7 only it was found exclusively upon the left ventricle. The influence of age upon its development is also remarkable; it was not found in the male under 17 years of age, or in the female under 22. After 40 years of age, in both sexes, these patches were not only better marked, but larger.

The following table, given by M. Bizot, shows its frequency at different ages, and in the two sexes:—

MALE.			FEMALE.		
Age.	No. of subjects.	No. of examples.	Age.	No. of subjects.	No. of examples.
1 to 17	16	0	1 to 22	31	0
18 " 39	24	8	23 " 39	23	5
40 " 79	32	23	40 " 89	30	9

Conclusions.—There can be no doubt that the opaque white patches which are found upon the visceral layer of the pericardium have not always the same origin. That they are sometimes the result of inflammation is more than probable, because several patches are occasionally present, and the opacity extends along the course of the coronary vessels on both sides of the heart, particularly along the veins; adhesions likewise will be found between the base of the auricular appendices and adjoining parts, or between the aorta and pulmonary artery, as described by Mr. Paget. In these cases a slighter degree of opacity or a haziness of the membrane will be observed in addition around the patches: they can be dissected off, but the surface from which they are detached is flocculent and uneven. The seat of the deposition of the lymph appears to be rather under the serous layer of the pericardium than upon its free surface, and may probably be upon the cardiac fascia described by Dr. Robert Lee.

The other variety, which is never seen in young subjects, appears to be the result of some peculiar alteration or degeneration of the transparent tissues connected with advanced life, and analogous to the *arcus senilis*: it probably commences in the serous layer of the pericardium itself; it is much more frequent than the other; its ordinary seat is upon the anterior surface of the right ventricle; and the older the subject, the more marked in general is the opacity.

Dimensions of the Heart.

Normal size of the heart.—In order to determine whether the heart is increased or diminished, or preserves its normal dimensions, it is absolutely necessary to have correct ideas respecting the size and weight of the heart; but as these vary with the age of the subject and with the sex of the individual, it is obvious that we can have no single standard for the adult heart.

Laennec laid it down that the closed hand of the subject was pretty nearly a mark of the size of the heart. This, however, is far from being the case; the heart of the infant at birth is larger than its closed hand, while the size of the hand varies according to the nature of the occupation of the person. It was supposed at one time that stature had considerable influence upon the size of the heart, and that this organ was always larger in tall than in short persons, in consequence of the greater distance to which the blood has to be transmitted. M. Bizot has, however, shown that stature has not the influence which was once supposed, and that whatever it exerts is rather in the opposite direction, the absolute size of the heart in both sexes being slightly less in tall persons; this, however, has been denied by M. Bouillaud. According to M. Bizot, the beadth across the shoulders has a greater influence than stature; the mean size of the heart and the width of the shoulders in both sexes being in a pretty regular ratio.

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[*] Guy's Hosp. Reports.

[†] Mem. de la Soc. Med. d'Observation. Tome I.

That the heart increases in size with the age of the individual,—that in advanced life it is larger than in the adult,—and that it is larger in proportion in the male than the female at every age, has been satisfactorily proved by M. Bizot. The results of accurate measurements of the heart in 156 individuals of all ages given by him, show that this organ regularly and progressively increases in all its dimensions—length, breadth, and thickness—up to the latest period of life; the increase being more rapid before twenty-nine years of age than after that period; and that the heart of the female at every period of life is smaller than that of the male.

The late Dr. Clendinning, whose researches were carried on about the same time, but without any knowledge of M. Bizot's labours, arrived at very nearly similar conclusions; his inquiries were particularly directed to determine the absolute weight of the heart in health and disease, as well as its relative weight to the entire body. Dr. Ranking, likewise, from the examination of anumber of healthy hearts, and M. Neucourt from researches carried on at the Saltpêtrière, in the service of MM. Valleix and Beau, have been able to corroborate some of M. Bizot's conclusions. M. Neucourt's examinations were limited to females in advanced life.

Length of the heart.—The length of the healthy heart in the adult, according to Meckel, measured from the centre of the auricles, is between five and six inches, four of which are for the ventricular, and one and a half for the auricular portion. Senac considered from three and a half to four inches to be the average length of the ventricular portion of the heart. According to M. Bouillaud, the mean length of the heart, from the base of the left ventricle or from the aortic orifice to the apex of the organ, in nine subjects was three inches seven lines and three quarters. Dr. Ranking,[*] from an accurate examination of thirty-two healthy hearts (fifteen male and seventeen female,) gives, as the mean length of the heart, measured from the point where the aorta emerges to the apex of the organ, four inches and one-third for the male, and three inches and a half for the female. In my examinations, the length of the heart, measured from the summit of the appendix of the right auricle to the apex of the left ventricle, ranged from four inches and a quarter to five inches and a half. I look upon five inches and a half to be the full length of the healthy adult heart.

Breadth of the heart.—The breadth of the heart across the base of the ventricles Meckel considers to be three inches; Senac, between two and two inches and a half; M. Bouillaud states that the average in eight hearts was three inches seven and a half lines, and the mean circumference at the base of the ventricles eight inches nine lines and three-sevenths. Dr. Ranking gives the mean circumference of the base of the heart in the male as slightly above nine inches and a half; in the female, about eight inches and a quarter. In the examinations which I have made, I have found the breadth of the heart across the ventricles to range between three inches and a quarter and four inches.

The following table, given by M. Bizot, shows the progressive increase in length and breadth of the heart from infancy to old age, as well as the comparative size of the heart in the male and female at different ages. The measurements are given in lines; the length is measured from the base of the ventricular portion to the apex; the width, at the part where the auricles and ventricles join one another:—

MALES.				FEMALES.			
Age.	Number of subjects.	Length.	Breadth.	Age.	Number of subjects.	Length.	Breadth.
1 to 4	7	$22\frac{4}{5}$	27	. . .	8	$22\frac{5}{8}$	$25\frac{7}{8}$
5 „ 9	3	$31\frac{1}{5}$	33	. . .	10	$26\frac{3}{5}$	29
10 „ 15	3	34	37	. . .	5	$29\frac{3}{5}$	$31\frac{1}{5}$
16 „ 29	18	$42\frac{5}{19}$	$45\frac{14}{19}$	. . .	14	$38\frac{5}{7}$	$42\frac{2}{14}$
30 „ 49	23	$43\frac{2}{23}$	$47\frac{18}{23}$	. . .	27	$41\frac{2}{27}$	$44\frac{1}{27}$
50 „ 79	19	$45\frac{12}{19}$	$52\frac{15}{19}$	50 to 89	19	$42\frac{4}{19}$	$46\frac{11}{19}$

Conclusions respecting the size of the heart.—From the preceding details it appears that—

1. The heart in both sexes gradually and progressively increases in size from infancy to old age; the increase being more rapid up to twenty-nine years of age than after that period.

2. The heart of the male is larger in all its imensions, at every period of life, than that of the female; and the ratio is nearly the same at all ages except infancy.

3. The breadth across the base of the ventricles exceeds the length of the ventricles at every age, and in both sexes.

4. The mean length of the ventricular portion of the healthy heart of the male, at the period of

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[*] Medical Gazette.

life when this organ attains its maximum development, is slightly under three inches ten lines; in the female, under three inches seven lines.

5. The mean breadth of the ventricular portion of the healthy heart of the male in advanced life is below four inches five lines; in the female, below three inches eleven lines.

6. In persons of elevated stature the absolute size of the heart is not only not greater than in individuals of medium height, but, from M. Bizot's researches, appears to be rather less.

7. The capacity of the thorax, indicated by the width of the shoulders, has a greater influence upon the size of the heart than stature; and this organ is larger, as a general rule, where the shoulders are wide apart than in individuals with narrow shoulders.

Weight of the healthy heart.—Lancisi was the first to endeavour to determine the normal condition of the heart by weighing it; but until within the last few years we had no positive information respecting either the absolute weight of the healthy heart, or the ratio which the weight of the heart bears to that of the entire body; and it is to the researches of the late Dr. Clendinning that we are principally indebted for statistics under these heads. He has shown* that the absolute weight of the healthy heart varies with the age and sex of the subject; that in the female the weight is always below that of the male; and that in the male the weight increases gradually with the years as life advances; while in the female, although the absolute weight is rather less in old age than about fifty, the relative weight to the entire body increases as life advances after that period.

Absolute weight of the heart.—Senac considered the weight of the healthy heart of the adult to be between eight and ten ounces. Meckel lays down ten ounces as its average weight; Lobstein estimated it at between nine and ten ounces; Cruveilheir at between six and seven ounces; and Sanson at eight ounces and a half. Bouillaud says we may fix the mean weight of the heart in the adult between twenty-five and sixty years of age, at between eight and nine ounces: in thirteen cases given by him, the average was eight ounces three drachms, the maximum being eleven ounces, and the minimum being six ounces two drachms: the former, he observes, belonged to a subject of colossal stature, and of strong constitution; the latter to a subject of only sixteen years of age.

The following table, given by Dr. Clendinning,† shows the net average weight of the healthy heart at different ages, in the two sexes. Forty-eight of the subjects were males, and ninety-eight females; none are included in the table in which the weight of the heart reached eleven ounces avoirdupois:

Age.	Male.	Female.
15 to 30 . . .	$8\frac{1}{2}$ oz.	$8\frac{1}{7}$ oz.
30 to 50 . . .	$8\frac{1}{2}$	$8\frac{1}{3}$
50 to 70 . . .	$9\frac{1}{2}$	nearly 8
70 to 100 . . .	$9\frac{3}{4}$	8

Ratio of weight of heart to the body.—The ratio which the weight of the heart bears to the entire body is different at different ages, and in the two sexes. According to Meckel, in the infant soon after birth the ratio is as one to one hundred and twenty, while in the adult it is as one to two hundred. But, as Dr. Clendinning remarks, Meckel has not given particular observations, and possibly did not pay sufficient attention to differences of age, sex, and disease. The following table, given by Dr. Clendinning, shows the ratio which the weight of the heart bears to the entire body at different ages, and in the two sexes. This table includes twenty-three subjects under puberty, most of whom were under five years of age: forty-two males and fifty-eight females above puberty:—

Age.	Male.	Female.
Under puberty . .	1 to 146	1 to 153
15 to 30	1 to 164	1 to 169
30 to 50	1 to 150	1 to 161
50 to 70	1 to 161	1 to 187
70 and upwards . .	1 to 155	1 to 121

"The absolute weight of the healthy heart may therefore," Dr. Clendinning observes,* "be assumed to average for the whole of life above puberty, about nine ounces for the male, and eight ounces, or a little more, for the female; and to bear after death to the entire body the ratio of about one to one hundred and sixty for the male, and one to one hundred and fifty for the female." So that a male adult heart considerably exceeding the 160th part of the whole subject, might, for a person of the working classes, and of ordinary fatness, but of much muscularity, be held to be normal; while a heart of like absolute dimensions, but occurring in a subject of average stature and muscularity, would be justly considered hypertrophous, although, owing to general obesity or œdema, it should not exceed, or should even fall short of, the 160th part of the weight of the person. And this observation applies *mutatis mutandis*, to the female; in whom, I think, the extremes of obesity and leanness more frequently occur than in the male." The female stature and muscular development vary considerably less than the male, and the limits of normal nutrition, and the volume of the heart, are consequently narrower; so that any female heart greatly exceeding eight ounces in weight or volume may *ipso facto* be suspected of hypertrophy, whatever may be its apparent anatomical condition; and but few instances indeed, if any, will be met with, I apprehend, of female hearts exceeding nine ounces in volume, or nine and a half in weight, in the persons of individuals of ordinary stature and conformation, that had been quite free from pectoral disease during their lives."

Comparative weight of parts of the heart.—We possess but few statistics bearing upon the comparative weight of the several parts of the heart one to another. According to Valentin, the weight of the left ventricle is double that of the right; and he calculates from this that the force exerted by the right ventricle in its systole is only half that of the left; allowing two-thirds of the force of the septum to the left ventricle and one-third to the right. Ludwig states as the result of weighing the muscular substance of the ventricles, in both a moist and dry state, that the tissue of the left ventricle contains much less water than the right; consequently it has a much greater relative weight when dried.

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* Med. Chir. Transactions.

† Medical Gazette, Vol. xxii

* Medical Gazette, Vol. xxii.

Conclusions respecting the weight of the heart:

1. The absolute weight of the heart increases with the years, as life advances, in a very perceptible manner in the male. In the female there is no increase in its absolute weight after fifty years of age.
2. The absolute weight of the heart is greater in the male than the female at every age.
3. The average absolute weight of the healthy adult heart may be set down as nine ounces for the male, and eight ounces, or a little more, for the female.
4. The ratio which the weight of the heart bears to the entire body is different at different ages, and in the two sexes.
5. In infancy, in both sexes, the ratio of the weight of the heart to the entire body is greater than in the adult. In advanced life it is greater than at the middle periods.
6. In the female in advanced life the ratio of the weight of the heart to the entire body is much greater than in the male at the same period of life.
7. In estimating the weight of the heart, in doubtful cases, the relative as well as the absolute weight of the organ ought to be taken.

Dimensions of the healthy heart, continued—Thickness of the parietes—Left ventricle—Right ventricle—Septum ventriculorum—Auricular walls—Conclusions respecting the thickness of the parietes of the heart—Capacity of the several cavities of the heart—Conclusions respecting—Diameter of the orifices of the heart—Right auriculo-ventricular orifice—Left auriculo-ventricular orifice—Aortic and pulmonary orifices—Conclusions respecting the diameter of the orifices of the heart—Relative position of the several parts of the heart to the parietes of the chest—Relative position of the orifices of the heart to the parietes of the chest—Relative position of the orifices of the heart to one another—Relative position of the large vessels to the parietes of the chest.

DIMENSIONS OF THE HEALTHY HEART.

Thickness of the parietes.—The parietes of the several cavities of the heart have not the same thickness; as a general rule, the walls of the left chambers are thicker than those of the right, and the parietes of the ventricles much exceed those of the auricles; the left ventricle has much thicker walls than the right, and the walls of the left auricles are a little thicker than those of the right.

Left ventricle.—According to M. Bouillaud* the average thickness of the walls of the left ventricle, near its base, in ten subjects, was six lines and a half; we may consider (he adds) seven lines as the average thickness of the parietes of this ventricle. According to Dr. Ranking* the mean thickness of the walls of the left ventricle in the male, at a point about an inch distant from the origin of the aorta, is 27-48ths of an inch; in the female 23-48ths of an inch. M. Bizot's researches† prove that the parietes of the left ventricle, in both sexes, go on increasing in thickness from youth to advanced age; and that the thickest part of its walls is at the middle, next at the base, and that the thinnest part is at the apex.

The accompanying table, given by him, shows the mean thickness (in lines) of the parietes of the left ventricle at these three points, in the male and female, at different ages:—

Left Ventricle.

MALE.				FEMALE.			
Age.	Base.	Middle.	Apex.	Age.	Base.	Middle.	Apex.
16 to 29	4 2-9	3 7-9	3 4-9	16 to 29	4 2-7	4 7-13	3 5-28
30 to 49	4 17-46	5 1-11	3 13-23	30 to 49	4 1-9	3 27-54	3 6-27
50 to 79	4 37-38	5 29-38	4 1-29	50 to 89	4 1-2	5	3 3-4
Mean average between 16 and 79	4 65-122	5 19-122	3 95-122	Mean average between 16 and 89	4 3-8	4 4-5	3 13-30

Right ventricle.—According to M. Bouillaud, the average thickness of the walls of the right ventricle in ten subjects was two lines three-fifths: we may therefore, he says, consider two lines and a half as the average thickness of the parietes of the right ventricle. According to Dr. Ranking, the mean thickness of the walls of the right ventricle in the male, at a point about an inch distant from the origin of the pulmonary artery, is 8-48ths of an inch; in the female 6-48ths of an inch. According to M. Bizot, the thickest part of the parietes of the right ventricle is not at the same point as on the left side, but is close to the base of the heart; and the parietes of this ventricle remain nearly stationary at the different periods of life, being, however, a little thicker in advanced life than at an earlier period.

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* Traité des Maladies du Cœur, 2nde édition.

* Medical Gazette.

† Mém. de la Soc. Méd. d'Observation, tome i.

The following table, given by M. Bizot, shows the mean thickness (in lines) of the parietes of the right ventricle at three distinct points, in the male and female at different ages:—

Right Ventricle.

MALE.				FEMALE.			
Age.	Base.	Middle.	Apex.	Age.	Base.	Middle.	Apex.
16 to 29	1 27-38	1 8-19	1 1-19	16 to 29	1 4-7	1 2-7	25-28
30 to 49	1 39-46	1 7-23	45-46	30 to 49	1 19-22	1 13-54	25-27
50 to 79	2 1-19	1 53-168	81-84	50 to 79	1 1-4	1 1-4	1
Mean average between 16 and 79	1 113-122	1 99-244	1 2-61	Mean average between 15 and 59	1 2-3	1 7-24	673-720

Septum ventriculorum. According to Dr. Ranking, the mean thickness of the septum of the ventricles, taken at its centre, in fifteen males between 26 and 65 years of age, was 22-48ths of an inch. In seventeen females, between the age of 18 and 62, 14-48ths of an inch. M. Bizot's researches show that the thickness of the septum of the ventricles goes on increasing from infancy to an advanced period of life; and that it is thicker in the male than in the female. The following table, given by him, shows the average thickness, in lines, of this part at its centre, in the male and female at different ages.

Age.	Male.	Female.
16 to 29	4 17-18	4 11-14
30 to 49	4 21-23	4 11-27
50 to 79	5 1-3	5 3-19

Auricular walls.—The walls of the left auricle exceed those of the right in thickness; but statistics are wanting under this head. M. Bouillaud is almost the only writer who has given measurements. According to him, the average thickness of the parietes of the left auricle in four subjects was one line and a half; of the right auricle one line.

Conclusions respecting the thickness of the parietes of the heart.—From the preceding details it appears that—1. The parietes of the left ventricle are thicker in the male than in the female heart at every age.

2. The parietes of the left ventricle and of the septum ventriculorum increase in thickness as age advances in both sexes.

3. The parietes of the right ventricle increase also in thickness as age advances in both sexes, but in a much less ratio.

4. The thickest part of the parietes of the left ventricle is at the centre, next at the base, and it is thinnest at the apex.

5. The thickest part of the parietes of the right ventricle is at the base.

6. The thickest part of the septum ventriculorum is at its centre.

7. The mean thickness of the parietes of the left ventricle, or of the septum, in the healthy heart of the male in advanced life, when the walls of the heart attain their maximum development (viz. between 50 and 79 years of age,) and at the thickest part, is under six lines.

8. The mean thickness of the parietes of the left ventricle in the female, between 50 and 89. years of age, is five lines.

9. The mean thickness of the parietes of the right ventricle in the healty heart of the male, between 50 and 79 years of age, and at its thickest part, is a fraction above two lines; in the female, one line and a quarter.

10. The mean thickness of the parietes of the left ventricle is, therefore, in both sexes, nearly three times as great as that of the right ventricle, as was long since laid down by Riolanus.

Capacity of the cavities.—The capacity of the several cavities of the healthy heart is not the same: the auricles exceed the ventricles in this respect; the right auricle likewise exceeds the left, and the capacity of the right ventricle is greater than that of the left. The capacity of both ventricles increases gradually as life advances in both sexes: the increase is more rapid in youth; after fifty years of age it is less marked, although it still goes on; so that, both in infancy and old age, the ratio between the capacity of both ventricles is the same.

That the capacity of the right ventricle is greater than that of the left was suspected long before it was actually proved. Senac says repeated examinations have convinced him that the capacity of the right ventricle exceeds that of the left; but that the difference is almost insensible in some subjects. M. Bouillaud repeats nearly Senac's words: he says—" the medium capacity of the right ventricle exceeds that of the left; but the difference is really very slight." This position has, however, been denied by some writers, and the apparently increased capacity of the right ventricle has been supposed to depend upon the accumulation of blood in the right cavities of the heart after death. " There is uch reason to believe (Dr. A. Thomson ob-rves*) that the greater capacity of the right ıricle and ventricle depends in part upon the cumulation of blood which generally takes place ı most kinds of slow death in the pulmonary teries; and in part also upon the greater thin-ess, and consequent distensibility, of the right entricle. In men dying suddenly, and in animals illed purposely, in which the pulmonary artery s opened so as to allow of the free egress of the lood from the right side of the heart, the capa-ity of this ventricle is not greater than that of he left, and the proportions of the capacity of he two sides of the heart usually found after slow leath are sometimes reversed when a ligature is placed on the aorta, and the pulmonary artery is opened." But, as was long since remarked by Senac, "since in the fœtus the capacity of the right ventricle exceeds that of the left, it would be strange if in the adult they should have the same capacity." While M. Bizot's researches have proved that the right ventricle exceeds the left in capacity at every age; that this is the normal condition of the parts; and that it is not at all owing to the accumulation of blood during the last moments of life.

The actual capacity of each of the ventricles has been endeavoured to be determined by filling their cavities with fluid or with injection; but, as the parietes of the right ventricle are much more yielding than those of the left, this method is calculated to lead into error; indeed, Senac says he has introduced a pound and a half of injection into the cavities of the heart without using much force. According to him, each ventricle holds about two ounces of fluid; but the excess over this is very variable, the right sometimes holding from one to four drachms more. Hales estimated the capacity of the left ventricle at one fluid ounce and a half, and that of the right at two fluid-ounces. Each ventricle, on an average, it is generally considered, will contain a hen's egg, and, when moderately distended, is capable of holding from an ounce and a half to two fluid-ounces, or a little more.

M. Bizot determined the capacity of the ventricles by laying open their cavities, and measuring accurately the internal surface from above downwards, and transversely. From his researches it appears that both ventricles are wider than long in both sexes, and at every age; that the length, but particularly the breadth of the right ventricle, exceeds that of the left at all ages; that the capacity of the ventricles is greater in the male than the female; and that the relative capacity of the two ventricles is pretty nearly the same in advanced life and in infancy.

The following table, given by him, shows the average dimensions (in lines) of the interior of the cavities of both ventricles in the two sexes, and at different ages:—

Left Ventricle.

MALE.			FEMALE.		
Age.	Length.	Width.	Age.	Length.	Width.
16 to 29	$33\frac{14}{19}$	$51\frac{1}{19}$	16 to 29	$29\frac{9}{14}$	$47\frac{6}{13}$
30 " 49	$29\frac{11}{23}$	$53\frac{4}{23}$	30 " 49	$31\frac{16}{17}$	$46\frac{4}{17}$
50 " 79	36	$56\frac{4}{5}$	50 " 79	31	$49\frac{1}{2}$
Mean average between 15 and 79	$34\frac{24}{61}$	$54\frac{2}{61}$	Mean average between 15 and 89	$31\frac{1}{30}$	$48\frac{23}{30}$

Right Ventricle.

MALE.			FEMALE.		
Age.	Length.	Width.	Age.	Length.	Width.
16 to 29	$36\frac{15}{19}$	$79\frac{5}{19}$	16 to 29	35	$74\frac{5}{14}$
30 " 49	$37\frac{13}{23}$	$83\frac{10}{23}$	30 " 49	$33\frac{13}{27}$	$76\frac{17}{27}$
50 " 79	$37\frac{1}{5}$	87	50 " 79	$35\frac{11}{19}$	76
Mean average between 15 and 79	$37\frac{14}{61}$	$82\frac{11}{60}$	Mean average between 15 and 89	34	$76\frac{3}{5}$

The capacity of the right auricle exceeds that of the left: the proportions established in the "Mémoires de l'Academie" between them are as twenty-four to thirteen; according to Santorini, as five to three; but the inequality is seldom so marked in the perfectly healthy heart. According to Dr. Sibson,† the capacity of the right auricle is about the same as that of the right ventricle; while the capacity of the left auricle is less than that of the left ventricle. He, however, estimates the capacity of both ventricles as the same.

Conclusions respecting the capacity of the cavities of the heart.

1. The capacity of both ventricles increases gradually as life advances in both sexes, the increase being more rapid in youth.
2. The ratio between the capacity of each ventricle is pretty nearly the same at all ages.
3. The capacity of both ventricles is greater in the male than in the female.
4. The capacity of the right ventricle much exceeds that of the left at all ages, and in both sexes.
5. The right ventricle holds, when moderately distended, about two fluid-ounces; the left ventricle about one ounce and a half.

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* Cyclopædia of Anatomy and Physiology.
† Trans. of Prov. Association, vol. xii.

6. The capacity of the right auricle exceeds that of the left; and the capacity of the auricles is greater than that of the corresponding ventricles; but further statistics are required under this head.

Diameter of the orifices.—The size, as well as the shape, of the arterial and auriculo-ventricular orifices is different: the former have a circular, the latter rather an elliptic form; the left auriculo-ventricular orifice has more of a crescentic shape than the right. The orifices of the right side of the heart exceed in size those of the left: this, however, applies more to the auriculo-ventricular than to the arterial orifices, as in advanced life the aortic orifice rather exceeds the pulmonary in size. M. Bizot's researches likewise show that the diameter of all the orifices of the heart is greater in the male than in the female, and that their size progressively increases as life advances in both sexes from puberty to old age.

In order to determine the diameter of the orifices of the heart, the most convenient method is to lay open the part by an incision through it, and take its circumference, from which the diameter is readily calculated. When the orifice is diseased, or if we wish to preserve the preparation, we must be content with measuring the diameter by means of a pair of compasses.

Right auriculo-ventricular orifice.—According to Cruveilhier, the long diameter of this orifice is from sixteen to eighteen lines; its short diameter twelve lines. M. Bouillaud found the average circumference of this orifice in three healthy hearts to be three inches ten lines; the maxmium being four inches, the minimum three inches nine lines. According to Dr. Ranking, the mean circumference of this orifice in fifteen males was 4 inches 35-48ths; in seventeen females, 4 inches 8-48ths. In the measurements which I have made, I have found the long diameter of this orifice to range between fourteen and sixteen lines and a half.

The following table, given by M. Bizot, shows the mean circumference (in lines) of this orifice at different ages in the male and female.

Right auriculo-ventricular orifice.

MALE.		FEMALE.	
Age.	Lines.	Age-	Lines.
16 to 29	50 9-19	16 to 29	37 12-13
30 „ 49	54 5-23	30 „ 49	47 4-27
50 „ 79	57⅓	50 „ 89	49 13-19
Mean average between 16 & 79	54 12-61	Mean average between 16 & 89	48¼

Left auriculo-ventricular orifices.—According to Cruveilhier, the long diameter of this orifice is from thirteen to fourteen lines; its short diameter from nine to ten lines. M. Bouillaud states that the average circumference in three harts examined by him was 3 inches 6⅓ lines; the maximum being 3 inches 10 lines, the minimum 3 inches 3 lines. According to Dr. Ranking, the me circumference of this orifice in the male is inches 45-48ths; in the female, 3 inches 22-48t In the examinations which I have made, the lo diameter of this orifice, measured from the auric ranges between ten and twelve lines.

M. Bizot has given the following table of t mean circumference (in lines) of this orifice in t two sexes at different ages:—

Left auriculo-ventricular orifice.

Male.		Female.	
Age.	Lines.	Age.	Lines.
16 to 29	41	16 to 29	38
30 „ 49	48 9-22	30 „ 49	40 17-26
50 „ 79	48 13-19	50 „ 89	44 4-19
Mean average between 16 and 79	45 17-30	Mean average between 16 and 89	41⅓

Aortic orifice.—According to M. Bouillaud, the average circumference of the aortic orifice in four healthy hearts was 2 inches 5½ lines; the maximum being 2 inches 8 lines; the minimum, 2 inches 4 lines. According to Dr. Ranking, the mean circumference of this orfice, on a line with the insertion of the semilunar valves, in fifteen males between twenty-six and sixty-five years of age, was nearly 2¾ inches; in seventeen females, between eighteen and sixty-two years of age, 2 inches 22-48ths. According to Dr. Chevers, the circumference of the aortic orifice, immediately below the semilunar valves, is 36½ lines; above them, 34 lines. In the examinations which I have made I have found the diameter of this orifice to range between ten and twelve lines. The accompanying table, given by M Bizot, shows the mean circumference (in lines) of the aortic orifice, at the free border of the semilunar valves, in the male and female, at different ages:—

Aortic orifice.

Male.		Female.	
Age.	Lines.	Age.	Lines.
16 to 29	26 10-19	16 to 29	24 3-9
30 „ 49	30 20-23	30 „ 49	28 3-27
50 „ 79	36	50 „ 89	32 5-6
Mean average between 16 and 79	31 15-61	Mean average between 16 and 89	28 4-5

Pulmonary orifice.—M. Bouillaud found the mean circumference of the pulmonary orifice in four healthy hearts to be 2 inches 7¾ lines; the minimum, being 2 inches 10 lines; the maximum 2 inches 6 lines. According to Dr. Ranking, the mean circumference of the pulmonary orifice in the male is 2 inches 34-48ths; in the female, 2 inches 24-48ths.

The following table, given by M. Bizot, shows e mean circumference (in lines) of this orifice the free border of the sigmoid valves.

Pulmonary orifice.

Male.		Female.	
Age.	Lines.	Age.	Lines.
16 to 29	29 2-19	16 to 29	28 3-14
30 „ 49	31 12-23	30 „ 49	29⅓
50 „ 79	35	50 „ 89	32 17-36
Mean average between 16 and 79	32 21-61	Mean average between 16 and 89	30 7-60

Conclusions respecting the diameter of the orifices of the heart.—From the preceding details it ppears that—

1. The diameter of all the orifices of the heart s greater in the male than the female at every ge.

2. The diameter of all the orifices of the heart increases gradually from birth to old age in both sexes.

3. The auriculo-ventricular orifices exceed the arterial orifices in size at every age, and in both sexes.

4. The right auriculo-ventricular orifice exceeds the left in size in both sexes, and at every period of life, except in the female between the ages of sixteen and twenty-nine, when according to M. Bizot, there is a very slight excess of the left over the right.

5. The pulmonary orifice exceeds the aortic orifice in size in both sexes, up to the age of fifty; after this period the aortic orifice slightly exceeds the pulmonary orifice.

6. The mean circumference of the right auriculo-ventricular orifice, in the healthy heart of the male, in advanced life, when the orifices of the heart attain their maximum size,—viz. between fifty and seventy-nine years of age—is, omitting fractions of lines, 4 inches 9 lines; of the left auriculo-ventricular orifice, four inches.

7. The mean circumference of the right auriculo-ventricular orifice in the female, between fifty and eighty-nine years of age, is (omitting fractions of lines) 4 inches 1 line; of the left, 3 inches 8 lines.

8. The mean circumference of the pulmonary orifice in the male in advanced life is 2 inches 11 lines; of the aortic orifice, 3 inches.

9. The mean circumference of the pulmonary orifice in the female, between sixteen and eighty-nine years of age, is about 2 inches 8 lines; of the aortic orifice, 2 inches 8 lines.

Relative position of the several parts of the heart to the parietes of the chest.—A knowledge of the exact position of the several parts of the heart, particularly of its valves and orifices, and of their relation to fixed points on the parietes of the chest, is of considerable importance in the diagnosis of the diseases of this organ, as it enables us to determine the size of the heart in the living subject, to ascertain whether it is increased or diminished in any of its diameters, or whether it is displaced, and the amount of the displacement; and by it we can often determine which of the valves or orifices is diseased, as well as the nature of the morbid change.

The apex and body of the heart being capable of some change of position, according to the posture of the patient, and according to the motions of the diaphragm, and the base of the organ, from which the large vessels proceed, being more fixed, the latter is the most convenient point from which to trace the outline of the heart, or to determine what parts correspond to certain fixed points upon the surface of the chest.

The sternum in front, with the cartilages of the true ribs, laterally form, in a great measure, the anterior boundaries of the heart; a small portion only of this organ near its apex extends on the left side beyond the cartilages of the ribs. The base of the ventricular portion of the heart is from three to three and a half inches below the clavicle, and on a line with the junction of the cartilage of the third left rib with the sternum. The impulse of the apex of the organ is felt between the fifth and sixth left ribs, near where the body of these ribs joins the cartilage. A line, therefore, drawn between these two points gives the length of the ventricular portion of the healthy heart. In addition, the nipple in the male constitutes a useful guide: it is situated immediately opposite the lower edge of the fourth rib, a little more than an inch to the left of the junction of this rib with its cartilage. Thus we have a certain number of well-marked and easily distinguished points, to which any part of the heart situated underneath can be readily referred. It is necessary, however, to bear in mind (Dr. Sibson* observes) in examining the dead subject, that the lower margin of the pericardial sac is lower than the margin of the heart, as this organ, after the last vital contraction, contains less blood than during life, and retracts upwards.

The greater portion of the *right ventricle* lies behind the sternum; a portion of its upper part extends to the right of this bone, and its apex extends to the left of the sternum.

All the anterior surface of the *left ventricle* is to the left of the sternum; its left margin reaches to the nipple on the left side.

The *right auricle* is to the right of the sternum; its appendix lies behind the cartilage of the third right rib; its tip rests against the right side of the ascending portion of the arch of the aorta, and is on a line with the pulmonary valves.

The appendix of the *left auricle* is the only portion of it which is seen when the pericardium is laid open; it lies behind the cartilage of the third left rib, close to the sternum, resting against the left side of the commencement of the pulmonary artery.

The base of the heart,—that is, of the auricular portion,—is on a line with the interval between the junction of the second and third ribs with the sternum, the greater portion of it being under the sternum.

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* Trans. of Prov. Association, vol. xii.

The base of the ventricular portion of the heart on the left side rises as high as a line drawn across the junction of the cartilage of the third left rib with the sternum; that is, about three inches below the clavicle on that side. On the right side, owing to the oblique position of the heart, the base of the right ventricle corresponds to a line across the upper margin of the junction of the cartilage of the fourth right rib with the sternum.

The apex of the left ventricle is a little below the fifth left rib, to the left of the junction of this rib with its cartilage, and on a line with the articulation of the xyphoid cartilage with the sternum.

Relative Position of the Orifices of the Heart to the Parietes of the Chest.

The right auriculo-ventricular orifice lies behind the centre of the sternum, on a line with the lower margin of the articulation of the cartilages of the fourth ribs with the sternum.

The left auriculo-ventricular orifice lies behind the cartilage of the fourth left rib, near the sternum.

The pulmonary valves are on a line with the space between the cartilages of the second and third ribs, to the left of the sternum, and very close to this bone. In some instances they lie a little lower down,—viz. on a line with the junction of the cartilage of the third left rib with the sternum, and immediately under it.

The aortic valves lie behind the sternum, on a line with the junction of the cartilages of the third ribs with the sternum, and towards the left edge of this bone. When the valves of the pulmonary artery are situated lower down, the semilunar valves of the aorta will be lower also, and on a line with the interval between the insertion of the cartilages of the third and fourth ribs.

The free edge of the semilunar valves of the aorta corresponds accurately, M. Gendrin observes, to the base of the pulmonary valves. A line drawn across the inferior margin of the third ribs corresponds to the base of the valves of the pulmonary artery, and to the free border of the aortic valves.

Relative Position of the Orifices of the Heart to one another.

The right ventricle ascends higher than the left, and the left ventricle descends lower than the right. Hence the origin of the pulmonary artery is on a plane above that of the aorta.

The pulmonary orifice is the highest up, as well as the most anterior, of all the orifices of the heart. The aortic orifice lies behind it, and on a plane lower down. The left auriculo-ventricular orifice is immediately behind the aortic orifice, but on a plane lower down. The right auriculo-ventricular orifice is nearly on the same plane as the left, but more anterior.

Relative Position of the Large Vessels to the Parietes.

Aorta.—The ascending portion of the arch of the aorta comes to the right of the sternum, between the cartilages of the second and third ribs. In this part of its course it is within the pericardial sac, and in the dead subject lies at the depth of one inch and a half from the surface, the margin of the right lung and the pericardium being between it and the parietes of the chest. The transverse portion of the arch of the aorta crosses the trachea at the centre of the first bone of the sternum, on a line with the lower margin of the articulation of the cartilages of the first ribs with the sternum, and at a still greater depth from the surface. The arch of the aorta approaches most closely to the parietes at the point at which the arteria innominata comes off; that is, on a line with the junction of the cartilage of the second right rib of the sternum.

Pulmonary Artery.—The origin of the pulmonary artery is on a line with the junction of the cartilages of the third ribs with the sternum; the tip of the left auricle resting against its left side: it ascends about two inches before it divides; and a portion of the margin of the vessel here comes to the left of the sternum, between cartilages of the second and third ribs. The division of the artery is on a line with the upper edge of the cartilage of the second ribs, where they join the sternum, the apex of the pericardial sac being on a line with the junction of the cartilages of the second ribs with the sternum, though it is sometimes higher up, and on a line with the cartilage of the first ribs.

Motions of the heart—Motions of each of its cavities—Auricular systole and diastole—Ventricular systole and diastole—Order of succession of the heart's motions—Duration of the several movements of the heart—Period of repose of the heart—Frequency of the heart's action, and of the pulse—Effects of posture on the pulse—Cause of the influence of change of posture on the pulse—Ratio of the pulsations of the heart to the respirations—Rapidity of the passage of the blood through the heart—Force with which the blood is propelled by the left ventricle.

Motions of the heart.—The heart we have seen to be composed essentially of muscular tissue. As a muscular organ, it is adapted to perform certain motions. These consist in alternate contractions and relaxations of its muscular fibres; but the heart being a hollow viscus, and divided in its interior into distinct chambers, the contraction and relaxation of its muscular parietes must necessarily occasion the diminution and enlargement of its cavities, and of course react upon the blood they contain. The ventricles are the parts of the heart upon which the circulation mainly depends; the auricles (as was remarked by Hunter) are to be considered rather as reservoirs, "capable of holding a sufficient quantity of blood to supply the ventricles, and ready always to fill them as they are in need of it."

The function of the heart, it is scarcely necessary to observe, is the circulation of the blood;

it is the principal agent in this important process; and, as life depends upon its regular and constant action, the motions of the organ are altogether independent of the will. The heart, therefore, considered as a muscular viscus, belongs to the class of involuntary muscles, its movements being not only uninfluenced by the will of the individual, but carried on without his consciousness.

The manner in which the motions of the heart are performed, the order in which they succeed each other, and the phenomena which characterise its movements, have been determined by an examination of the heart in animals, where the parietes of the thorax had been removed and the heart exposed, the animal having been previously deprived of sensation, and artificial respiration kept up. The opportunity has likewise been occasionally afforded of examining this organ in the human subject in certain rare cases of congenital malformation, where the infant was born with a deficiency of the anterior parietes of the thorax, and the heart presented itself naked and uncovered to the view. Few parts of our subject have been more frequently or more carefully investigated than this, and there are few upon which a greater amount of time, labour, and talent, have been bestowed.

The motions of the heart consist, as I have said, of alternate contractions and relaxations of the parietes of its several cavities. The contraction of the ventricles, or their systole, as it is commonly termed, constitutes their active state; as soon as this ceases the muscular tissue relaxes, their cavities enlarge, and return to a state of fulness; when the ventricle is said to dilate, or its diastole, as it is termed, occurs. By the ventricular systole the blood is propelled into the aorta and pulmonary artery: as the ventricles re-expand, the blood, favoured by gravity, passes in a full stream from the auricles into the ventricles, to be again expelled when the ventricular systole ensues.

From the Report of the Committees of the British Association for 1838-39 and 1839-40, it appears that "the visible systolic and diastolic motions are first perceived at the bases or fixed parts of the cavities; viz. in the auricles at the sinuses, and in the ventricles at the fundus cordis; and that the apices of the auricles and ventricles, or free parts, are brought into full action after the others, and only just before the supervention of the opposite and next succeeding condition of the cavities respectively, whether that condition be systole or diastole."

It will now be necessary to consider separately the motions of each of the cavities of the heart.

Auricular systole.—The systole of the auricles is a quick, short, sudden motion. Lower says its rapidity equals the explosion of gunpowder. It immediately precedes the ventricular systole, the one motion appearing to be propagated into the other. It commences in the sinus, and extends to the appendix, but by a very minute interval. According to some authorities, it is first observed in the appendices. In feeble states of the heart's action it becomes vermicular.

The auricular systole is most apparent in the appendices, and is very feeble compared to that of the ventricles. By it a small additional quantity of blood is propelled into the ventricles; but its contraction is too slight either to empty the auricular cavities or to cause the dilatation of the ventricles. In the majority of cases, likewise it is too feeble to produce sound. Nevertheless, in some of the experiments of the Committee of the British Association, and in those conducted in America by Drs. Pennock and Moore, sound, though faint, was sometimes heard, which, in a great degree, merged into that of the ventricular systole, but still was real. The auricular systole occurs towards the end of the period of repose of the heart; its duration is about the eighth part of an entire beat of the heart.

Auricular diastole.—The diastole of the auricles is a passive movement: these cavities are gradually and progressively distended, from the sinus to the appendices, by the blood which enters from the venæ cavæ and pulmonary veins. It continues from the termination of one auricular systole to the commencement of the next, so that it persists through the systole of the ventricles, during their diastole, and during part of the interval of repose. M. Cruveilhier states, that the right auricle during its diastole (in a case of ectopia of the heart, which he had the opportunity of examining,) seemed ready to burst, so distended was it, and so thin its parietes: the left did not exhibit the same appearance, at least so decidedly. The duration of the diastole of the auricles is about seven-eighths of an entire beat of the heart.

Ventricular systole.—The systole of the ventricles is a gradual, progressive, and gliding movement, and performed with great force: it commences suddenly, instantly succeeding the auricular systole, so that the one movement appears to be propagated into the other. During their systole the parietes of the ventricles become pale, hard, and convex; the vertical and transverse diameters are diminished, the apex is approximated to the base, and describes a spiral motion from right to left, and from behind forwards, coming in contact with the parietes of the thorax between the cartilages of the fifth and sixth ribs on the left side, where the impulse of the heart is felt. Dr. Sibson* (in some experiments made by him) says, the ventricles in contracting, felt "like the pushed, revolving point of a pencil." "Wherever (he observes) "the junction of the left ventricle to the auricle could be observed, the apex and base of the ventricle were seen to approach each other steadily during the whole systole; so that, at the end of the systole, the apex was about the third of an inch nearer the left auricle than at the beginning, and the aorta was drawn downwards about a quarter of an inch."

In the experiments performed by Drs. Pennock and Moore,† the apex of the left ventricle was not observed to be approximated to the base during its systole. The expulsion of the blood from the ventricles (they observe) is effected by an approximation of the sides of the heart only, and not by a contraction of the apex towards the base: during the systole, the heart performs a "spiral movement, and becomes elongated." All other observers have, however, noticed the shortening from above downwards of the ventricular portion of the heart during the systole; and from the manner in which the fleshy columns of the valves are inserted, such would appear to be essential to the perfect action of the auriculo-ventricular valves, when the ventricles contract.

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* Trans. of Prov. Association, vol. xii.

† Medical Examiner, Nov. 1839.

The phenomena presented by the systole of the ventricles have been well described by Mr. Cruveilhier,[*] as observed by him in a case of ectopia of the heart, in an infant which lived for about fourteen hours.

"During their systole the ventricles become pale, their surface wrinkled, the superficial veins swollen, and the spiral fibres which form the apex of the heart become more evident. At the same time the ventricles diminish in all their diameters, the appearance of shortening being most perceptible in the vertical diameter."

"During the systole of the ventricles, the apex of the heart (that is, of the left ventricle) describes a spiral or turnscrew motion from right to left, and from behind forwards. This spiral movement is slow, gradual, and, as it were, successive; and it is to it that the impulse of the apex of the heart is due. The ventricular systole is not accompanied by a motion of projection of the heart forwards: it is the spiral contraction exclusively which projects the apex of the organ against the parietes of the thorax."

The ventricles do not appear to empty themselves completely during their systole; this, however, cannot be ascertained with certainty, owing to the thickness of their parietes; but, as Dr. Hope observes, the diminution of their volume is not in general so great as to convey the impression that they do. During the ventricular systole the blood is propelled with considerable force into the arterial orifices: the first sound of the heart is heard, and the impulse and pulse are felt. The systole of the ventricles occupies about one-half the period of an entire beat of the heart: that is, it is as long as the diastole, and the period of repose together, and is double the length of the ventricular diastole.

Ventricular diastole.—The diastole of the ventricles instantly succeeds the systole; it is a sudden and instantaneous movement; in it the ventricles increase in all their dimensions, the apex recedes from the base, the heart becomes elongated, the surface smooth, and it assumes the shape and position which it had previous to the systole. This movement of the heart has been divided into two stages; "the first, which immediately follows the ventricular systole, is sudden, the apex being pushed downwards, and *apparently* passing deeper into the chest, and is occasioned by the return of the heart to its state of rest." The second is also sudden, and attended by a rapid but not very extensive enlargement of the heart in all its dimensions." The force with which the ventricular diastole is accomplished is very considerable: in large animals, the hand grasping it is forcibly opened.

M. Cruveilhier gives the following account of the phenomena observed by him in the case of the infant before alluded to:—

"The ventricular diastole was sudden and instantaneous; the ventricular cavities became filled, swelled out, elongated, and the apex was projected downwards: it seemed at first sight as if this constituted the active movement of the organ, so rapid and energetic was it. One forms no idea of the force with which the dilatation overcomes any pressure upon the heart; the hand closed round it is violently opened."

"The ventricular diastole is accompanied by a movement of projection of the heart downwards, which was carried to the maximum when the infant was placed vertically. This motion was so decided that at first I was inclined to think that it was during the ventricular diastole that the impulse of the heart against the thoracic parietes occurred."

During the ventricular diastole the blood passes in a full stream from the auricles into the ventricles: it is not impelled by the auricles, neither is it the entrance of the blood which causes the ventricles to dilate; the utmost force of the auricular contraction could not cause the dilatation of the ventricles. Besides, the auricular systole does not occur until after the ventricular diastole. The duration of the diastole of the ventricles is brief compared to that of the systole, being about half the length of the former movement, and about one-fourth of the period of an entire beat of the heart; the second sound of the heart is synchronous with it.

Order of succession of the heart's motions.—The systole precedes the diastole in both the auricles and ventricles. The systole of the right and left auricle is synchronous, as is their diastole. The systole of the two ventricles is also synchronous, as is their diastole.

The systole of the auricles occurs during the latter part of the period of repose of the ventricles. The diastole of the auricles occupies the remainder of the period of repose of the ventricles, and the entire period of the ventricular systole and diastole. The systole and diastole of the ventricles occurs at the same period as the auricular diastole.

The order in which these several motions succeed each other is as follows:—

1. The auricular systole.
2. The ventricular systole.
3. The ventricular diastole.
4. The period of repose of the ventricles; during the latter part of which period the auricular systole occurs again.

From the termination of the diastole of the ventricles until the commencement of the next systole, "the ventricles are in a state of perfect pose, their cavities remaining full but not dis-ded."

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[*] Gazette Médicale.

If the duration of the movements of the ven-cles be divided into four equal periods, the ven-cular systole would occupy about two; the ntricular diastole something more than one; d the interval of repose something less than e. Or in portions of a second, the ventricular ystole would occupy about half a second; the iastole a little more than a quarter of a second; nd the period of repose something less than the uarter of a second: and if represented on paper ould be as follows:—

Ventricular systole. . . ————
Ventricular diastole . . ———
Period of repose. . . . ——

If the duration of the movements of the auricles be divided into eight equal parts, the auricular systole would occupy about one-eighth; their diastole the remaining seven-eighths: the auricular systole occupying part of the period of the repose of the ventricle; the auricular diastole occupying the remainder of the period of repose, as well as the period of ventricular systole and diastole.

Period of repose of the heart.—When the heart's action is very rapid, the alternate movements succeed each other so quickly that there appears to be no interval of repose. On the other hand, when it is very slow, two distinct intervals are distinguished—one short, between the systole and the diastole of the ventricles; the second longer, between the diastole and the next succeeding systole. The first of these intervals M. Gendrin proposes to call the *peri-systole;* the second, the *peri-diastole.* M. Volkmann states, that by employing a second's pendulum (the oscillations of which could be regulated at pleasure) he found the interval between the first and second sounds to bear to that between the second and first next sound the ratio of 96 to 100: "the intervals were, therefore (he observes,) almost equal, although, in the ordinary mode of examining the heart, this does not appear to be the case."

When the heart is beating with moderate frequency, but one distinct interval is perceived, which follows the ventricular diastole, and continues until the next succeeding systole. This is the pause in the heart's motions, or the interval of repose of the heart, and it corresponds to the *peri-diastole* of M. Gendrin. It occupies, as we have seen, nearly one fourth part of an entire beat, which would give about six hours' rest out of the twenty-four to the muscular fibres of the ventricles. But, as the muscular fibres of the ventricles are relaxed during their diastole, the period occupied by it may be added, which will make the period of repose or rest of the ventricles one half the time of an entire beat, or twelve hours out of the twenty-four, which was the period assigned by Laennec. As the auricular systole occupies only one-eighth part of an entire beat of the heart, and the diastole the remainder, the auricles (if the period of their diastole be considered as a state of repose) may be said to be at rest for twenty-one out of the twenty-four hours.

Frequency of the heart's action, and of the pulse.—The rapidity of the heart's action is not the same at every period of life: it varies also according to the sex, the temperament, and the idiosyncrasy of the individual: it differs at different periods of the day, and in different positions of the body, and it is remarkably influenced by affections of the mind.

In the female the heart's action is more rapid than in the male; the pulse of the adult female exceeding in frequency the pulse of the adult male, of the same mean age, by from nine to ten beats. According to Dr. Guy,* "the average pulse of the adult male may be stated at 70; that of the adult female at 80." "The female pulse (he observes) differs little from the male pulse during the first seven years of life; but after seven years of age the mean pulse of the female exceeds that of the male by from six to fourteen beats, the average excess being nine beats."

In early life the heart's action is much more rapid than in the adult; and in the adult it is somewhat more rapid than in advanced life. Thus, while in infancy the number of the pulsations of the heart average from 120 to 140 in a minute, the number in old age is usually between 50 and 70. The following table, given by Müller,† shows the average frequency of the heart at different ages:—

In the embryo the number of beats in a minute is		150
Just after birth	from 130	to 140
During the first year	115	" 130
" " second year	100	" 115
" " third year	90	" 100
About the seventh year	85	" 90
" " fourteenth year	80	" 85
In the middle period of life	70	" 75
In old age	50	" 65

It was formerly supposed that the rapidity of the heart's action gradually and progressively diminished from birth upwards; that it was quickest soon after birth; and that there was a gradual and sensible diminution in its frequency after that period. The remarkable fact has, however, been ascertained, that the pulse of the infant soon after birth is not unfrequently as slow as that of the adult. M. Billard‡ first called attention to this phenomenon, which has also been investigated and corroborated by M. Valleix.§ According to him, the mean frequency of the pulse in thirteen healthy infants, from two to twenty-one days old, when asleep, averaged 87 in a minute; when awake, from 90 to 100: but it was readily excited by motion or emotion. From the seventh to the twenty-seventh month, the average was 119 for the male, and 124 for the female infant; and it continued a little above 100 up to the age of six years.

According to Mr. Gorham,‖ the mean frequency of the pulse in sixteen infants under one day old was 123; in forty-two observations on infants from one to seven days old, the average was 128. Dr. Guy says, the observations of MM. Billard and Valleix are by no means borne out by his experience. "There is reason to believe (he thinks) that these low frequences of the pulse of infants occur in that state and degree of debility, without disease, which gives rise to an infrequent pulse in the adult, and that they do not occur in strong and vigorous health."

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* Cyclopædia of Anatomy and Physiology.
† Elements of Physiology, vol. i.
‡ Traité des Maladies des Enfans.
§ Mem. de la Soc. Med. d'Observation, T. 2.
‖ Medical Gazette, Vol. xxi.

The heart's action is less rapid during sleep than awake; this is probably connected in some manner with posture. The decrease in frequency of the heart's action occasionally observed in the fœtus in utero, has been attributed to the sleep of the embryo. The action of the heart is much slower when the individual is at rest than during or after bodily exertion. Dr. Bryan Robinson[*] states that the pulse of the adult, which ranged when at rest from 64 to 74, rose to 100 when walking at the rate of two miles an hour; to 140 when walking at the rate of four miles an hour; and when running fast, to 150 or more.

The heart's action is usually slightly accelerated after meals, particularly after the use of warm or spirituous liquors; and, contrary to the opinion at one time entertained, it is perceptibly quicker in the morning than in the evening. Dr. Knox,[†] who was the first to establish this fact, says the pulse is quicker by eleven beats, on an average, in the morning than in the evening. Dr. Guys[‡] experiments corroborate those of Dr. Knox. In the article "Pulse," in the Cyclopædia of Anatomy and Physiology, he has given a series of tables showing the diurnal variations of the pulse in the two sexes: "the facts contained in which may (he observes) be taken to establish the general law first set forth by Dr. Knox, that the pulse is less frequent in the evening than in the morning; but it is obviously subject to numerous exceptions."

Effects of posture on the pulse.—Posture has a remarkable influence upon the rapidity of the heart's action; it is more frequent in the sitting than in the recumbent posture; and more frequent in the erect than in the sitting posture. Attention was first called to this remarkable fact above a hundred years ago, by Dr. Bryan Robinson, of Dublin, in his "Treatise on the Animal Economy." In the third edition of this work, published in the year 1738, he states that the pulse, which in the recumbent posture was sixty-four, rose to sixty-eight in the sitting posture, and to seventy-eight in the erect posture. The late Dr. Macdonnell, of Belfast, so long ago as the year 1784, determined experimentally this influence of change of posture on the pulse; he termed it "*the differential pulse*:" the results of his observation were communicated to the profession at the meeting of the British Association in Dublin. This phenomenon has also been investigated with much care by Dr. Graves of Dublin, and by Dr. Knox of Edinburgh, and by Dr. Guy of London.

According to Dr Graves,[*] the difference between the pulse in the erect and recumbent posture in the healthy adult is from six to fifteen beats in a minute; "if the pulse is but sixty, the difference is generally not more than six or eight, and this difference increases with the frequency of the pulse at the time of the experiment: thus, if it has been raised to 90 or 100 by moderate exercise, it is not unusual to find the difference twenty or thirty." That it is not the muscular exertion necessary to raise the body from the recumbent to the erect posture which occasions this difference, was proved by Dr. Graves, by altering the position without the necessity of any muscular exertion on the part of the person experimented on. He tried also the experiment of inverting the position, placing the person with the head downwards and the feet in the air; the frequency of the pulse was not, however, altered, but its strength diminished often very considerably, and it not unusually became irregular.

Dr. Knox[†] has shown that the increase in frequency of the pulse occasioned by change of posture, is different at the different periods of the day. "During the morning the mere change of the posture from the horizontial to the erect will increase the pulse by about fifteen or twenty beats; at midday this increase will be ten; and in the evening only four or six."

Dr. Guy instituted an elaborate series of experiments to determine the alterations effected on the pulse by change of posture. The following are some of his conclusions[‡] under this head:—

"1. In the healthy adult male the mean Nos. of the pulse are—standing, 79; sitting 70; lying, 67.

"2. In the healthy adult female the Nos. are—standing, 89; sitting, 82; lying, 80.

"3. In both sexes the extremes are very remote from the mean results, and the exceptions to general rules very numerous.

"4. In both sexes, also, the effect of change of posture increases as the frequency of the pulse increases.

"5. The effect of change of posture on any given frequency of the pulse is much greater in the male than in the female.

"6. The effect of change of posture on the pulse is greater in the forenoon than in the other part of the day.

"7. The inverted posture of the body lessens the frequency of the pulse.

"8. The varying frequency of the pulse in different postures of the body is due to muscular contraction."

In states of debility, as in patients recovering from fever, the difference between the frequency of the pulse in the erect and recumbent postures becomes (Dr. Graves observes) a useful guide in the treatment: "the greater the difference the greater e debility." In hypertrophy, with dilatation f the ventricles, on the other hand, Dr. Graves und the pulse to be very little altered with resect to frequency on changing the position. In æmic and chlorotic females, and in individuals ho have suffered from profuse hæmorrhage, I ve observed that the difference between freency of the pulse in the recumbent and sitting sture is very marked; but these morbid states e always accompanied by more or less debility; d the pulse, in respect to frequency, is always ove the normal standard.

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[*] Treatise on the Animal Economy, 3d edit.
[†] Ed. Med. and Surg. Jour. vol. xi.
[‡] Guy's Hospital Reports, No. ix.

[*] Clinical Medicine, 2d edition.
[†] Ed. Med. and Surg. Journal, Vol. xi.
[‡] Cyclo. of Anat. and Physiology—art. Pulse.

Cause of the influence of change of posture on e pulse.—With respect to the cause of this alteration in the frequency of the pulse in different positions of the body, writers are not agreed. Dr. Guy refers it exclusively to muscular contraction; by others it has been attributed to the altered position of the heart, its valves and orifices, in the different positions; while Dr. Graves says "he cannot advance even a plausible conjecture concerning the reason why a change of posture should so affect the frequency of the pulse" "The two postures (Dr. Guy observes) between which there is the most marked difference in the frequency of the pulse, viz., the erect and sitting postures, are precisely those in which there is no difference in the position of the heart or its valves, and very little difference in the resistance offered to the circulation: while the sitting and recumbent postures, between which there is so slight a difference in the number of the pulse, are accompanied by a marked change in the position of the heart and its valves, and of the column of blood to be propelled. On the other hand, the difference in the amount of muscular contraction required to support the body in the erect and sitting postures is much more considerable than that required to support the body in the sitting and recumbent position—differences in strict conformity with the observed frequencies of the pulse in the several postures."

It appears to me, that writers, in seeking to explain the influence of position upon the pulse, have erred in endeavouring to refer it exclusively to a single cause: it probably lies as much in the lungs as in the heart; the latter organ being indirectly excited in consequence of the increased frequency of the respiration. For instance, the chest expands less, and less air is taken in in inspiration, in the recumbent than in the erect or sitting postures; there is less of the feeling, likewise, which inclines to frequent renewal of the air in the former than in the latter position. In certain diseased states this becomes sufficiently obvious: whenever dyspnœa is urgent, no matter what may be its cause, the patient is unable to remain in the recumbent posture, and seeks to obtain ease by sitting up. As there is less necessity for the blood to circulate quickly through the lungs in the recumbent than in the erect or sitting posture, the respirations are less frequent, and the general circulation is likewise less rapid.

At the same time, there can be no doubt that the venous blood is returned from the head and upper extremities to the right side of the heart more quickly and more freely in the erect and sitting than in the recumbent posture, being remarkably favoured by gravity in the former posisitions: the pulmonary circulation and the respirations necessarily, therefore, increase in frequency: the left side of the heart then feels its influence, the blood being conveyed more rapidly to it, and the general circulation becomes quickened in the same ratio. Hence there is no difficulty in understanding why the pulse should be more rapid in the one position than the other. Its increased rapidity in the erect over the sitting posture is probably favoured by muscular contraction, as stated by Dr. Guy.

Ratio of the pulsations of the heart to the respirations.—Under ordinary circumstances the proportion which the respirations bear to the pulsations of the heart is about as *one* to *four;* this was the ratio established by MM. Prevost and Dumas: the average number of respirations in a minute, in a healthy adult, being between sixteen and twenty, and the number of pulsations of the heart between sixty-four and eighty. When the heart's action is accelerated by motion or by exercise, the respirations are accelerated in the same ratio; and when its action becomes slow again, the respirations becomes also less frequent.

Mr. Hutchinson[*] has given a table of the number of respirations in a minute in 1714 healthy adult males, when in the sitting posture; from which it appears that the majority make between sixteen and twenty-four respirations in a minute: of these, a large number make twenty; and in the greater number there were four beats of the heart for one inspiration. The following table, given by Dr. Guy, shows the average proportions of the pulse to the respiration in 238 experiments; the pulse varying from 44 to 85 beats, and the respirations from 15¼ to 20½: the majority of the experiments were made in the sitting posture:—

No. of Observations.	Pulse.	Proportion.
8	45-50	2.75 to 1
37	50-55	3.05 to 1
50	55-60	3.31 to 1
50	60-65	3.52 to 1
50	65-70	3.59 to 1
27	70-75	3.82 to 1
12	75-80	4.18 to 1
4	80.85	4.31 to 1

The following table[†] gives the average result of some experiments made on himself by Dr. Harden, in order to determine the ratio of the pulse to the respiration in different postures:—

	Standing.	Sitting.	Lying.
Pulse	80	70	66
Respirations	16	14	12

According to Mr. Parrot,[‡] the frequency of the heart's action increases in a corresponding ratio with the elevation above the level of the sea. Thus—

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[*] Med.-Chir. Trans., vol. xxiv.

[†] Amer. Jour. of Med. Sciences, vol. v. 1843.

[‡] Muller's Physiology, vol. I.

When the pulse at the level of the sea was .	70
at 3282 feet above its level it rose to . . .	75
at 4875 " " "	82
at 6500 " " "	90
at 8125 " " "	95
at 9740 " " "	100
at 13000 " " "	110

The cause of the heart's action increasing in frequency according to the elevation above the level of the sea, appears to lie in the lungs rather than in the heart. We know that as the air becomes more rarified the respirations become more frequent: the heart, therefore, is only indirectly excited in consequence of the increased frequency of the respiration, and the ratio between the number of respirations and the number of pulsations of the heart is, probably, the same at each level.

Several pathological conditions have great influence upon the frequency of the pulsations of the heart: in but a few it becomes slower,—in the large majority of diseases it becomes more rapid than natural; while in certain morbid states the ratio between the number of the respirations and the number of pulsations of the heart becomes altered. These are matters, however, for subsequent consideration.

Rapidity of the passage of the blood through the system.—The rapidity with which the blood passes through the system can be estimated if the amount which is transmitted into the aorta at each systole of the left ventricle is known, and if the entire quantity of blood contained in the vessels is determined—the number of pulsations of the heart being given. Thus it has been estimated that the whole amount of blood contained in the vessels is about twenty-eight pounds; and that an ounce and a half is expelled at each systole of the left ventricle. If, then, the heart of the adult beats seventy-five times in a minute, 112½ ounces, or a little more than seven pounds of blood, would pass through the ventricle in a minute: in four minutes the entire twenty-eight pounds would pass through the heart; and in every hour it would pass through it fifteen times.

Force with which blood is propelled by the left ventricle.—The force with which blood is expelled by the left ventricle has been variously stated by physiologists. Hales made many experiments, with the object of determining this point; he estimated the force with which the blood is propelled into the aorta at four pounds six ounces: "seven feet and a half being the height to which he supposed the blood would rise in a tube connected with the large arteries." M. Poiseuille invented an instrument for measuring the momentum of the current of blood in the large arteries, to which he gave the name of *hemadynamometer*, from which he estimated the force with which the blood is propelled into the aorta at four pounds three ounces; "a result which agrees remarkably with that obtained by Hales."

In employing compression for the cure of external aneurism, I have found that the weight which was sufficient to diminish materially, o to check the current in a large artery, differe considerably in different subjects; in some instances a pressure equal to four pounds upon th femoral artery in the groin was sufficient to chec the pulsation of a popliteal or femoral aneurism in the majority of cases a pressure equal to six o eight pounds was necessary to effect the sam object; while sometimes a weight of ten pound was requisite.

Mechanism of the action of the valves of the heart—Auriculo-ventricular valves—Sigmoid and semilunar valves—Safety valve function of the tricuspid valve—Impulse of the healthy heart—Mechanism by which the impulse is produced—Sound sometimes caused by the impulse of the heart—Seat of the impulse—Alteration of the impulse in inspiration and expiration—Double impulse of the healthy heart.

MECHANISM OF THE ACTION OF THE VALVES OF THE HEART.

The valves of the arterial orifices of the heart are, Hunter* observes, "inelastic membranes having no action within themselves;" these valves are raised or depressed simply by a mechanical process, which can be effected equally well in the dead as in the living heart. The valves at the auriculo-ventricular orifices, on the other hand, being connected to the parietes of the ventricles by muscular columns, the shortening or lengthening of which are essential to the due performance of their valvular functions, cannot be made to act perfectly in the dead subject.

Auriculo-ventricular valves.—It has been already stated that the auriculo-ventricular valves are composed of curtains, of tendinous cords connected with these curtains, and of fleshy columns, which are attached by one extremity to the tendinous cords, and by the other to the parietes of the ventricle. Anatomists, in describing the mode of action of these valves, state, that one use of the fleshy columns is, by their contraction, to draw down the curtains of the valve, and so to approximate the edges of the valves, and close the orifice. It must, however, be recollected that, at the period at which the auriculo-ventricular valves close their orifices, viz., at the very commencement of the ventricular systole, the ventricles are full of blood: hence the contraction of the carneæ columnæ, and the tension of the tendinous cords, instead of approximating the edges of the valves and closing the orifices, would be rather to hold the curtains of the valve open, because the fleshy columns all run, more or less, towards the apex of the heart, to be inserted into the parietes of the ventricles.

It was long since remarked by Senac, that "in order for the auriculo-ventricular valves to close their respective orifices, the apex of the ventricle must be approximated to the base, as in the dilated state of the ventricle they are too short to do so." Hunter, in describing these valves, observes—"the tendinous cords are inserted into muscular columns, the intention of which is very evident: for if they had gone the whole length in the form of tendon, they would have been too long when the ventricle contracted, and the valves in such a case would have allowed of being pushed into the auricles; but the carneæ columnæ keep the valves within the ventricle in its contracted state." The use of the carneæ columnæ appears, then, simply to be to adapt the valve to the altered state of the ventricle during its systole and diastole, and to prevent them from being reversed during the systole. When the apex of the ventricle is approximated to the base during the ventricular systole, if these valves were not provided with muscular columns which shorten as the ventricle shortens, the valves would be reversed; but from the direction of the fleshy columns, as the ventricle is shortened, the carneæ columnæ must be shortened at the same time.

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* Treatise on the Blood.

The use of the carneæ columnæ therefore evidently is, not to close the curtains of the valves: this is effected by the mechanical operation of the blood contained in the ventricle, as was long since shown by Lower, though recently advanced as a novel view by Baumgarten and Hamernjk. The blood which enters from the auricle during the ventricular diastole, falls by its own gravity to the bottom of the ventricle, the curtains of the valve are thus floated towards the base of the ventricle; the auricular systole then impels a small additional quantity of blood into the ventricle: the systole of the latter instantly ensues, and the curtains of the valve are applied and pressed together so as to close the orifice. Hence the blood which enters the ventricle becomes in a great measure the means by which the auriculo-ventricular valves are closed, and regurgitation prevented.

The curtains of the mitral valve in closing the orifice, "meet (Mr. T. W. King* observes) not only by their free edges, but by the marginal portions of their auricular surface; and thus on each curtain there is a broad line or surface of contact situated just within the auricle, or between it and the ventricle, varying in breadth, regularity, and distinctness." These he terms "the surfaces of contact or attrition:" very slight traces of them are discoverable in the healthy adult heart. "The surfaces of contact (he adds) are liable to become attenuated or even perforated by disease, and this is the explanation of many cases of atrophy of the curtains of this valve: an appearance which is seldom observed in the curtains of the tricuspid valve."

As soon as the ventricular systole ceases, the muscular fibres forming the walls of the ventricles, and the carneæ columnæ of the auriculo-ventricular valves, are relaxed: the curtains of these valves, no longer pressed upwards by the blood, separate from one another: this fluid enters in a full stream from the auricle, until its systole again ensues, when the phenomena mentioned before are repeated.

Sigmoid and semilunar valves.—The mechanism by which the valves at the orifices of the aorta and pulmonary artery close their respective orifices, is, as I have said, simply mechanical; behind each of these valves a little sinus (sinus of Morgagni) is seated, into which the blood readily insinuates itself as the ventricular systole ceases; and the valves are pressed down by the weight of the column of blood above. Without some provision of this kind, the blood could with difficulty get behind those valves, and regurgitation into the ventricles of necessity would frequently take place during the diastole of these cavities.

When the ventricular systole ensues, the sigmoid and semilunar valves are elevated and pressed against the sides of the aorta and pulmonary artery by the blood in its passage into these vessels; and here again another use of the sinuses of Morgagni comes into operation—viz. to afford a space for the valves to lie back in at this period of the heart's action, and thus to render the interior of the aorta and pulmonary artery perfectly smooth and even at the part. If there had not been some provision of this kind, these valves would project, in a certain degree, upon the interior of the artery, render this portion of the vessel uneven, and of course increase the friction between the blood and the interior of the artery in its passage through it. When the aortic valves become rigid from disease, they cannot lie back in their normal position during the ventricular systole, and not only is the blood in its passage from the ventricle into the aorta impeded, but regurgitation into the ventricle is, as we know, frequently permitted.

The little fibro-cartilaginous bodies (corpora Arantii) which are situated near the centre of the free margin of each of the semilunar valves, are supposed by some anatomists to serve the purpose of filling up the small space, which they suppose would be left in the centre, when the valves fall down; but as these little bodies are not seated at the very margin of the valves, they could scarcely effect this object, which indeed is unnecessary, because it has been shown by Dr. Duncan that the arterial valves, particularly those of the aorta, overlap one another slightly where they meet: indeed, Mr. King says "the surfaces of contact are not unfrequently equal in extent to the remainder of the curtain of the valve." The use of these little bodies evidently is to strengthen the valves, by serving as points of insertion for the tendinous bands which enter into their formation. Without this provision these valves would be very liable to become reversed.

Safety-valve function of the tricuspid valve.—Mr. Hunter,* in describing the action of the tricuspid valve, observes—"I have reason to believe that the valves in the right side of the heart do not so perfectly do their duty as those of the left; therefore we may suppose it was not so necessary." Mr. Adams,† after quoting the foregoing remark of Hunter, observes—"This circumstance in my opinion, has not been sufficiently noticed, nor the influence that such a structure may have on the circulation in its natural or morbid state, considered. I look upon this difference in the valves of the right and left side of the heart to be a natural provision to allow of a partial reflex into the right auricle on those occasions when from any cause the passage of the blood through the arterial opening is retarded. Such a provision was absolutely necessary in the right or pulmonary ventricle, as various natural causes must momentarily retard the passage of blood through the lungs.

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* Guy's Hospital Reports.

* Treatise on the Blood.

† Dublin Hospital Reports, vol. iv.

More recently, Mr. King,[*] in an elaborate paper on "the Safety-valve Function in the Right Ventricle," has entered at length upon the subject, and pointed out the mechanism in the construction of this valve by which he considers regurgitation to be permitted. In the same communication he has given a minute description of the tricuspid valve, and of the manner in which its fleshy columns are connected with the ventricular walls. The fleshy columns of the anterior and right division of this valve are principally inserted (he observes) into the yielding wall of the ventricle; those of the posterior division into the septum: the latter is consequently more fixed. The anterior and right divisions of the valve he calls "the curtains of distension," and he considers them the agents by which the orifice is opened so as to permit of regurgitation in the auricle.

In the normal state of the tricuspid valve, and of the orifice of communication between the right auricle and ventricle, and when the ventricle is only moderately distended, regurgitation is not permitted: it does, however, occur if the right ventricle at the commencement of its systole is much distended: this may occur in a state of health when the heart's action is increased by any cause; but it subsides when this ceases, and the mechanism by which it is brought about is sufficiently simple.

In describing the tricuspid valve I mentioned that a single fine tendinous cord, not springing from any fleshy column, is frequently found to be attached by one extremity to some part of the anterior curtain of this valve, either near the base of its carneæ columnæ, or near where the latter join the tendinous cords; the opposite extremity is inserted into the right or yielding wall of the ventricles, or into the base of the fleshy columns of one of the other divisions of the valve. Its use apparently is to prevent the anterior curtain of the valve from being applied to the orifice when the ventricle is much distended; and the more the cavity of the ventricle is distended, the more open will it keep this valve; while, when the ventricle is not much distended, it will in no way interfere with the perfect action of the valve.

While the tricuspid valve, under the circumstances mentioned, permits regurgitation, the mitral valve always perfectly closes the left auriculo-ventricular orifice, and never, unless when it the orifice has undergone some morbid chang permits regurgitation. Indeed, the effect of di ease upon these two valves or orifices is generall quite the reverse: in the majority of cases in whic the mitral valve or orifice is altered from its normal condition, the opening is contracted; whil the tricuspid orifice, on the other hand, is more frequently found to be dilated; and the phenomenon known as "jugular pulsation" usually attends the latter state.

"The mitral valve (Mr. Adams[*] observes) so perfectly closes the aperture of communication between the left auricle and ventricle, that in the natural state no reflux whatever is admitted: this, so useful at the right side of the heart, would have been not only useless, but injurious, at the left side of the organ, as we find the general arterial system at all times equally ready to receive the blood during the systole of the left ventricle; and if the mitral valve did not close the left auriculo-ventricular aperture, a great deal of the force of the aortic ventricle would be wasted, whereby it would be incapable of moving the mass of blood which was destined to fill the arterial system." "Pathologists, in looking (he adds) to the different nature of the lining membrane at the two sides of the heart, as a means of explaining the greater liability of the left side to disease, have perhaps too much overlooked this circumstance—that while, from the unyielding nature of the mitral valve, all reflux into the auricle is prevented, from this very cause, which renders it effective in the circulation, is it exposed to more frequent injury, from which organic disease may arise, and the ventricle to which it belongs becomes more liable to be ruptured by its own efforts."

Impulse of the healthy heart.—The impulse of the heart accompanies the systole of the ventricles and the first sound of the organ, and has its cause in the apex of the heart coming in contact with the parietes of the thorax between the cartilages of the fifth and sixth left ribs. The mechanism by which the impulse is produced was long a disputed point, and various have been the theories advanced by physiologists to explain it: even the period of the heart's action at which it occurs has been the subject of difference of opinion.

Thus it was at one time maintained that the impulse occurred during the diastole of the ventricles; and this opinion appeared to derive confirmation from the fact that when the heart of the frog is exposed (which will continue to pulsate for a considerable time after being laid bare,) the ventricle, during its diastole is seen to expand, and to approach the parietes; while during the systole the apex is simply approximated to the base. In this animal, therefore, the heart approaches the parietes during the diastole, not during the systole of the ventricle, and any impulse which is given must be at the period of the ventricular systole. An experiment was performed by Oesterreicher,[†] which consisted in removing he heart of the frog from the body, and laying pon it a substance sufficiently heavy to press it lat, and yet so small as not to conceal the heart rom view. He states that during the systole of he ventricle the weight was raised, but that durng its diastole the heart remained flat. This experiment has been quoted by Müller and others, o prove that the diastole of the ventricles is not a muscular act, in ignorance apparently of the foregoing peculiarity in the action of the heart in this animal. In warm-blooded animals, however, experiments and observations repeated over and over again have proved that the impulse occurs at the period of the ventricular systole, and that it is due to the apex of the heart coming in contact with the parietes of the chest.

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[*] Guy's Hospital Reports, vol ii.

[*] Dublin Hospital Reports, vol. iv.

[†] Muller's Physiology, vol. i.

Mechanism by which the impulse of the heart is produced.—It will not be necessary to delay to notice the various theories which have been advanced in order to explain the mechanism by which the impulse of the heart is produced: the majority of these are founded on erroneous views. It will be sufficient to observe, that during the ventricular systole the walls of the ventricle become more convex upon the surface, the apex of the heart describes a spiral motion from behind forwards, and from right to left: in describing this spiral movement, the apex glides obliquely upon the pericardium, is approximated to the base, comes in contact with the parietes of the thorax in the intercostal space between the cartilages of the fifth and sixth ribs, and thus causes the impulse. Indeed, this part of the heart is naturally so close to the parietes of the chest that no tilting forward of its apex is necessary to produce the slight shock felt at this period.

It was the received opinion until within a few years, that during the diastole of the ventricles the heart receded from the parietes of the chest, and that the impulse was produced by a blow, or shock given to the ribs by its apex, during the systole. Harvey, Haller, Senac, and Hunter, may be quoted as authorities for this theory. The experiments which have been performed upon animals of late years, and the examination of the action of the organ in cases of ectopia of the heart, have, however, shown that this theory has no foundation, and that the heart "does not suffer any changes in consequence of its own efforts (exclusive of the movements of the lungs and diaphragm) except in its shape and size, in the thickness and tension of its parietes, and in the capacity of its cavities," which are quite sufficient to produce the slight shock felt when the hand is laid on the parietes of the chest.

M. Ritter has recently advanced this as a novel doctrine, in ignorance probably of the results of the experiments of the "Committees of the British Association." His experiments are entirely corroborative of those previously made. "The portion of the heart's surface (he observes) which is in immediate relation to the walls of the chest, is at all times in close contact with them; and it is impossible that in any of its motions it can act so as to withdraw itself from the thoracic walls, or so as to leave a space between them." "Being thus fixed, therefore, it follows that, when the heart contracts and assumes a more globular form, it will exert its distending force on the yielding intercostal spaces against which it rests, and will thrust them forwards, so as to produce the impulse. This distending force cannot be exerted with any effect against the unyielding ribs or their cartilages; and, consequently, the impulse is not perceived by the finger placed over the cartilages of the fourth, fifth, or any other rib. If the impulse was caused by an actual stroke or blow of the heart against the walls of the chest, it would be perceived on these parts and on the sternum as clearly as it is in the intercostal spaces, and every person would feel the impulse of his own heart just as a pregnant woman feels any violent movements made by the fœtus in utero."

Sound sometimes produced by the impulse of the healthy heart.—Although in the healthy subject, when the circulation is tranquil, and the heart's action is normal, no sound is produced by the impulse, yet it occasionally happens that when the same heart is excited to increased action,—in other words, when palpitation ensues, whether the cause be mental emotion or corporeal exertion, but particularly the former,—the apex of the heart does come in contact with the ribs, the patient feels the blow or shock produced by the impulse of his own heart; and this is accompanied by sound, which of course will be heard at the period of the first sound of the heart, and will modify it in a certain degree or add to it. Under such circumstances the first sound of the heart becomes loud and ringing, and in diseased states it is sometimes so intense as to be audible without applying the stethoscope, and may be heard at a short distance from the patient. This point will be again alluded to when we come to consider the abnormal conditions of the heart.

Seat of the impulse of the heart.—The point at which the impulse of the heart is felt in the healthy male is the intercostal space between the cartilages of the fifth and sixth ribs upon the left side, to the sternal side of the nipple, and about two inches below this point. In the female, owing to the habitual wearing of stays, the impulse is usually a little higher up—viz. between the cartilages of the fourth and fifth left ribs; and in the latter months of pregnancy, for an obvious reason, it is perceived still higher up, and the apex is pushed more to the left side.

The impulse of the healthy heart is naturally slight; it is more marked in the erect than in the recumbent position, because in the latter position the heart, by its own weight, recedes slightly from the parietes of the chest. For the same reason the impulse becomes more distinct if a person leans forward, and more indistinct if he lies upon his right side. In the erect posture the impulse is said to be slightly lower than in the recumbent posture; but the difference, if any, is very trifling. In very fat persons the impulse is scarcely perceptible to the eye or hand; in very lean persons it is very obvious to both. When the lungs are largely developed they will overlap the heart more than usual; when the lungs are small, less of the heart will be covered by these organs: in the latter case, therefore, the impulse will be better marked than in the former.

Alteration of the impulse in inspiration and expiration.—In inspiration, particularly on a full inspiration, the impulse of the apex of the heart will be felt lower down than natural, as low as between the cartilages of the sixth and seventh ribs, or, in the epigastrium, between the line of the xyphoid cartilage. This is partly owing to the connection of the heart with the lungs, and partly to the connection of the pericardium with the diaphragm. On a full inspiration the lungs expand from above downwards, as well as from before backwards; and, according to Dr. Sibson, from the manner in which the pulmonary veins are joined to the left auricle, the heart is drawn down by the descent of the lungs. The principal cause of this descent of the heart in inspiration appears to lie rather in the intimate connection of the pericardium with the central tendon of the diaphragm; as the latter descends it must bring with it the heart; and from the connection of the inferior or ascending vena cava with the diaphragm, it must follow the movements of the latter, and draw down the right auricle. On a full inspiration, the impulse, in addition to being lower down, will be less marked than natural, because the lungs, when fully inflated, meet so as almost to cover the heart, and prevent its apex from coming in contact with the parietes of the thorax.

On a forced *expiration*, on the other hand, owing to the ascent of the diaphragm, the impulse of the heart is felt higher up—viz. on a line with the space between the cartilages of the fourth and fifth ribs on the left side; it is likewise more marked than natural, because the heart is less covered by lung. The point at which the impulse of the heart is felt is altered in some diseases of this organ, or of the lungs, or pleura, as well as in diseases of the abdominal viscera. These matters will, however, be considered when we come to describe the diseased states of the heart.

Double impulse of the healthy heart.—The impulse of the healthy heart has been almost always described as single; Magendie,* however, who attributes the first sound of the heart to the shock of the apex during the ventricular systole, lays it down that the second sound is due to the shock given by the ventricles to the parietes of the thorax during their diastole." The ventricles in dilating (he observes) in a great measure under the influence of the rapid influx of the blood, give a shock to the anterior parietes on the right side of the thorax, and thus produces the second clear sound." Dr. Sibson,† in his valuable essay upon the "Changes in the Situation of the Internal Organs," observes:—"A second impulse is often felt in persons whose lungs are diminished, and whose great vessels come close to the sternum. This is synchronous with the second sound, and must, I conceive, be due to the sudden springing forwards of the walls of the right ventricle after the systole." In the year 1848, in a communication* upon the subject of "Aneurism of the Aorta," made to the Surgical Society of Ireland, I called attention to the fact that the impulse of the healthy heart, when the organ is acting vigorously, is double, not single.

The impulse of the healthy heart, I observed upon that occasion, has been always described as single, just as that of aneurism of the arch of the aorta was supposed to be. If we *carefully* examine this organ, however, when it is beating vigorously, we shall find that a second but slighter impulse is perceptible, which quickly succeeds the other; and on applying the stethoscope we shall find that this second impulse accompanies the second sound of the heart: it appears as if the agency which gives rise to the second sound was capable of communicating a distinct sensation to the hand or stethoscope.

In the healthy heart the second impulse is scarcely felt, unless the organ beats vigorously; when the ventricles are somewhat hypertrophied, and their cavities somewhat dilated, the second impulse becomes better marked; when this has arrived at an extreme degree it becomes very evident, and constitutes then the "back stroke of the heart," or the diastolic impulse. This diastolic impulse, except in cases of disease, is never so strong as to be perceptible to the eye, but is readily distinguished when the ear is applied to the stethoscope laid upon the præcordial region. It is perceived at the same part of the chest as the systolic impulse, and is more marked the larger the surface of the heart uncovered by lung, and the stronger the action of the organ.

With respect to the cause of the diastolic impulse, Dr. Sibson† observes—"The second or diastolic impulse, which is felt between the second and third, and sometimes between the first and second costal cartilages, is neither more nor less than a sign that the upper part of the right ventricle, and the origin of the pulmonary artery, over which it is felt, are in contact with the walls of the chest." "This diastolic impulse, which is synchronous with the second sound, is a physiological, not a pathological phenomenon, and is due to the sudden return forward of the walls of the right ventricle, and of the origin of the pulmonary artery, immediately after the systole; the parts in question then impinge with a short sharp tap on the left second and third costal cartilages, and on the space between them."

When describing the motions of the heart, we saw that during the ventricular diastole the apex of the heart recedes from its base; the organ becomes elongated, the ventricles increase in all their dimensions, and the hand grasping the heart is forcibly opened. Now, when we consider how closely the anterior surface of the ventricular portion of the heart lies to the parietes of the thorax, there is no difficulty in understanding how an imlse may be communicated during this movement equally as during the ventricular systole; it ppears only surprising that it should have been very generally overlooked.

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* Elements of Physiology.
† Trans. of Prov. Association, vol. xii.

* Dublin Medical Press, vol. xix.
† London Journal of Medicine, vol. i.

Sounds of the heart—Normal limits and intensity of the heart's sounds—Mechanism by which the sounds of the heart are produced—Theories of the cause of the first sound—Theories of the cause of the second sound—Theory of the sounds of the heart most generally received—Remarks on the foregoing theory—Theory of friction between the blood and the parietes of the orifices of the heart as a cause of the sounds—Objections to the theory of valvular tension as a cause of the first sound—Objections to the theory of muscular contraction as a cause of the first sound—Objections to the theory of the recoil of the blood upon the arterial valves as a cause of the second sound—Pathological evidence in favour of the theory of friction between the blood and the parietes of the orifices of the ventricles as a cause of the sounds of the heart.

Sounds of the heart.—If the ear, either with or without the stethoscope, is applied to the præcordial region in a healthy subject, two sounds are heard, which succeed each other quickly, but are readily distinguished from one another, and are followed by a pause or interval of repose; after which the same phenomena are repeated. If the heart's action is very slow, a short but distinct interval may be recognised between these two sounds, and the pause or interval of repose is longer: if, on the other hand, the action of the heart is very quick, the sounds follow one another with such rapidity that there scarcely appears to be any interval of repose.

The sound which occurs first in order after the pause is termed the first sound of the heart, sometimes the systolic sound; that which follows it is termed the second sound, sometimes the diastolic sound. The first of these sounds, compared with the second, has a dull character and its duration is longer; the second sound is short and clear, and was compared by Laennec to the lapping of a dog, or to the falling back of a valve. The first sound is heard at the period of the ventricular systole, and for this reason has been named the systolic sound: it is synchronous with the impulse of the heart, and with the pulse. The second sound occurs at the period of the ventricular diastole, and for this reason is sometimes termed the diastolic sound: it immediately precedes the pause or interval of repose.

Both these sounds are readily distinguished at every part of the præcordial region: both are well marked at that part of this region where a dull sound is elicited by percussion; that is, where the heart approaches most closely to the parietes of the chest. Cruveilhier, in his examination of an infant born with her heart exposed, ascertained that both sounds increased in intensity from the apex towards the base of the heart, and that the maximum intensity of bo[illegible]sounds was at the same place, and *vice versâ*: "Hence (he observes) it is at the base of the organ we are to look for the cause of these sounds." Both sounds of the heart are usually well marked at the point where the apex is felt to beat, as well as over the base of the ventricles. The first sound is generally considered to have its greatest intensity on a plane lower than the second; and M. Pigeaux, from this circumstance, has proposed the name *inferior* sound for the first, and *superior* sound for the second. The sounds developed at the orifices of the right ventricle are better heard towards the right edge of the sternum; those developed at the orifices of the left ventricle are better heard towards the left edge of this bone; and the American experimenters determined that the ventricular systolic sound on the right side was sharper and clearer than that on the left, which was more dull and prolonged.

Normal limits and intensity of the heart's sounds.—There is considerable difference even in health in different individuals in the intensity as well as in the extent over which the sounds of the heart are audible: in some subjects they are limited to the præcordial region, and are comparatively feeble there; in others they extend much beyond the præcordial region, and are loud there. Whether the sounds are feeble or the contrary, and whether they are limited to the præcordial region or not, will depend upon a variety of circumstances—as the intensity of the sounds themselves, which is different in different subjects; as the coverings of the chest are thick or thin; as a larger or smaller surface of the heart comes in contact with the parietes; as the lungs are largely developed and overlap the heart, or the contrary; and as the chest is capacious or narrow.

Dr. Latham,[*] in his admirable lectures, speaking of the "natural limits of the heart's sounds," observes—"It is a preliminary point which some have thought most important to be determined with precision: but no good ever comes from pretending to more precision than the thing itself admits of; and I am sure this matter does not admit of much. The præcordial region, it has been said, defines it; but surely the second sound always exceeds that limit, and is audible also in the course of the aorta, of the pulmonary artery, and of the carotids." "With respect to the first sound, I should be at a loss to mark the exact space within which healthy proportion and healthy structure always required it to be heard, and in neither more nor less. There are so many circumstances, some consistent with health in the largest sense, and some exclusive at least of its disease, which make the systolic sound of the heart more or less extensively audible, that (I am persuaded) two healthy persons would not easily be found in whom it would be heard exactly within the same thoracic space. Whether a man be fat or lean will always make a great difference. In the one it will be kept within the præcordial region; in the other it will be carried beyond it. Fat is so bad a conductor, that, where it greatly abounds, it will restrict the sound to less than the entire præcordial region, even to a very small part of it; so that you will not be able to hear the heart further than you can feel its impulse, or further than its apex. But mere skin and bone are such good conductors, that in very thin persons the sound will be spread very far beyond the præcordial region, and will be heard at any part of the chest to which you apply your ear."

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[*] Lectures on Diseases of the Heart, vol. i.

"I believe that in most persons of what is called a nervous temperament, even when they are under no conscious excitement, the heart's sounds are to be heard beyond it; and I believe, too, that in persons of this temperament the heart's sounds are apt to be of a higher intonation One condition, no doubt, is the result of the other. In proportion as the sounds of the healthy heart are more highly intonated, they acquire a greater audible extent. The louder they are, the further you hear them; and it is the very characteristic of a nervous heart to have its sounds both highly intonated and extensively audible."

Mechanism by which the sounds of the heart are produced.—We come now to the most difficult part of the subject—the cause of the sounds of the heart, or the mechanism by which they are produced: it is the one upon which the greatest difference of opinion has existed among physiologists and anatomists, and for the explanation of which the greatest number of hypotheses have been advanced.

Theories of the cause of the first sound.—It must be borne in mind that at the period at which the first sound of the heart is heard—

1st. The muscular walls of the ventricles contract, and the cavity of the ventricles is diminished.

2dly. The mitral and tricuspid valves close their respective orifices.

3dly. The blood is propelled with considerable force into the aorta and pulmonary artery.

4thly. The valves at these orifices are suddenly elevated; and

5thly. The impulse of the apex of the heart against the parietes of the chest takes place.

Now the first sound of the heart must obviously be due to one or other of these acts, or to a combination of them; and it will be necessary to notice shortly the theories which have been advanced under this head.

As it has been completely proved that the first sound of the heart accompanies the ventricular systole, any theory founded upon a different order of succesion of the heart's motions must be rejected,—such as, that it is due to the systole of the auricles, or to the diastole of the ventricles, or to the systole of the left ventricle alone, the second sound being attributed to the systole of the right; because it is well known that the two ventricles contract simultaneously; that the ventricular diastole occurs at the period of the second, not of the first sound; and that the auricular systole does not take place at the period of the first sound of the heart.

The theories which have been advanced in order to explain the mechanism by which the first sound of the heart is produced, may, for convenience sake, be considered as the cause is supposed to be extrinsic to or intrinsic to the heart Thus, under the first, it has been attributed to the impulse of the apex against the parietes of the chest; under the second head, it has been attributed to muscular contraction—in other words, to the successive shortening of the muscular fibres of the parietes of the ventricles. This is the oldest theory: it was adopted by Harvey, Haller, Senac, Bichât, and Corvisart. 2dly. To the sudden closure of the auriculo-ventricular valves. 3dly. To the friction of the blood against the parietes of the interior of the ventricles, or of the orifices of the large arteries. 4thly. To the collision of the opposite internal surfaces of the ventricles at the conclusion of the systole. 5thly. To the straightening or elevation of the sigmoid and semilunar valves, caused by the wave of blood transmitted by the ventricles; and, lastly, to two or more of the foregoing causes combined.

Theory of the sound being produced by the impulse.—Majendie is the principal supporter of the theory that the first sound of the heart is caused by the impulse communicated by the apex of the organ to the parietes of the thorax during the ventricular systole. This sound has, however, been distinctly heard in experiments upon animals where the anterior parietes of the chest were removed, and the heart fully exposed, as well as in infants labouring under ectopia cordis.

Theory of Muscular Contraction.—Those who refer the first sound of the heart to the muscular contraction of the walls of the ventricles include two phenomena under this head—viz, "the sound of muscular extension or tension," and the "bruit musculaire" or "rotatoire." Dr. Hope refers this sound essentially to muscular extension, which, according to him, is "a loud, smart sound, produced by the abstract of sudden jerking extension of the already braced muscular fibres at the moment that the auricular valves close." "It is (he observes) essentially different from the bruit musculaire, since it may be produced in a dead muscle, and may attain a high degree of loudness or sharpness; whereas bruit musculaire can only be produced in a living muscle, and is never more than dull and subdued." Other physiologists suppose the cause of this sound to lie exclusively in bruit musculaire. Dr. Blakiston is of opinion that it is caused by "the friction of the muscular fibres of the walls of the ventricles *inter se.*"

Theory of the collision of the opposite walls of the ventricles.—By some physiologists the first sound of the heart has been attributed to the collision of the opposed internal surfaces of the ventricles at the conclusion of the systole; but as it is a doubtful point whether the ventricles completely empty themselves during their systole, and as it is quite certain that no such collision of the opposite walls of the ventricles takes place, this theory may be dismissed.

Valvular theory.—By many physiologists the first sound of the he[illegible] has been attributed to the sudden tension or closure of the mitral and tricusid valves which occurs during the ventricular systole. Dr. Billing in England, and M. Rouanet in France, are the most distinguished advocates of this theory. But, as the auriculo-ventricular valves close their respective orifices at the very commencement of the systole of the ventricles, this act is certainly not capable of producing the prolonged first sound of the heart. According to M. Cruveilhier, on the other hand, the first sound is due not to the closure of the mitral and tricuspid valves, but to the straightening or elevation of the sigmoid and semilunar valves, caused by the wave of blood transmitted by the ventricles.

Theories of the motion of the blood.—According to M. Pigeaux, the first sound of the heart is due to the friction of the blood against the walls of the ventricles, and of the orifices and parietes of the large arteries, during the ventricular systole. According to M. Gendrin, it is due to the "vibrations which result from the sudden change of form which the blood experiences during the ventricular systole." According to others, to the collision of the particles of the blood against each other, and against the walls of the ventricles, during the systole.

Theories of the cause of the second sound.—The second sound of the heart is heard at the period of the ventricular diastole; and it must be borne in mind that during this act—

1st. The muscular fibres of the walls of the ventricles are relaxed, and the ventricular cavities become enlarged.

2dly. The auriculo-ventricular valves are opened, and the blood passes from the auricles into the ventricles, through the mitral and tricuspid orifices.

3dly. The sigmoid and semilunar valves are pressed down by the column of blood above them, and the aortic and pulmonary orifices are closed.

The second sound of the heart must, therefore, have its cause in one of these acts, or in a combination of them; and any theory founded on a different order of succession of the heart's motions cannot be correct, as that this sound is due to the auricular systole (Laennec,) because the auricles contract immediately before the ventricles; or that it is due to the auricular diastole (Beau,) because no sound is produced during this act; or that it is due to the systole of the right ventricle (Piorry,) because both ventricles contract simultaneously.

The theories which have been advanced to explain the mechanism by which the second sound of the heart is produced, may, like those of the first sound, be considered under the head of causes extrinsic to the heart, and causes intrinsic to it. Thus Majendie attributes the second sound to the impulse communicated by the ventricles to the parietes of the chest during their diastole; and Dr. Turner, to the falling back of the heart against the pericardium at the moment of the ventricular diastole. But the second sound was heard in experiments upon animals where the ribs and sternum were removed and the pericardium laid open, as well as in infants labouring under ectopia cordis.

Those who refer the second sound to causes intrinsic to the heart, consider that, like the first sound, it may have its cause in muscular action, in valvular action, or in the motions of the blood. Thus by some this sound has been supposed to be due to the stretching of the muscular fibres of the ventricles in their diastole; but the muscular fibres are relaxed during this period of the heart's action. It has been also attributed to the rush of blood through the auriculo-ventricular orifices during the ventricular diastole; to the collision of the blood against the parietes of the base of the ventricles during their diastole; to the sudden closure of the sigmoid and semilunar valves at the moment of the ventricular diastole; or to the recoil of the column of blood in the aorta and pulmonary artery upon the sigmoid and semilunar valves at the moment that the ventricles dilate.

Theory of the sounds of the heart most generally received.—The theory of the mechanism by which the sounds of the heart are produced which is most generally received, is as follows:—

First sound.—The first sound of the heart is regarded as a compound sound, partly valvular and partly muscular, the valvular portion being its first and loudest part, and being due to the sudden tension or closure of the mitral and tricuspid valves. The muscular portion of the sound, which is dull and prolonged, is supposed to be caused by the contraction of the muscular fibres of the walls of the ventricles, and to be due essentially, according to Dr. Hope, to "muscular extension," but receiving a "prolongation, and possibly an augmentation, from bruit musculaire;" according to others, to bruit musculaire alone, or to friction between the fibres of the muscular tissue of the ventricles.

That this sound is partly due to the sudden closure of the mitral and tricuspid valves, is considered to be proved "by the sound being loudest over the parts of the ventricles nearest to the auricular valves;" 2dly, "when valvular extension was prevented by holding the mitral valve open (in experiments upon animals,) this greatly diminished the first sound;" 3dly, whenever the auricular valves were destroyed, or the blood evacuated out of the ventricles, the sound became dull and obscure;" and lastly, by the character of the first sound in dilatation with attenuation of the ventricles, when it closely resembles the second sound.

That the first sound of the heart has its cause, likewise, in contraction of the muscular fibres of the walls of the ventricles, is considered to be proved by the "character of the sound,"—by its continuing during the entire systole—by its being still heard, although weaker in the heart of animals removed from the body,—"by its being heard, although modified in animals, when the auriculo-ventricular valves were prevented from acting, or when the blood was prevented from entering the cavity of the ventricles by pressing upon the orifices,"—"by the sound being louder over the surface of the ventricles than over the origin of the large arteries,—and finally, by the sound being loud and short, when the walls of the ventricles are thin ; and dull and prolonged when its walls are thick ;" because a thick ventricle, cæteris paribus, takes a longer time to contract than a thin one.

Second sound.—The second sound of the heart is supposed to be due either to the sudden closure of the valves at the orifices of the aorta and pulmonary artery, owing to the recoil of the blood upon them at the moment the ventricular systole ceases ; or to the shock of the column of blood in the aorta and pulmonary artery, which recoils upon these valves at the moment of the ventricular diastole. This theory is supposed to be proved " by the second sound of the heart being loudest over the sigmoid and semilunar valves, and a little above them"—" by the sound ceasing in experiments made upon animals, when the reflux of the blood upon the semilunar valves was prevented by compressing the arterial orifices with the fingers" —and " by its being diminished when a semilunar valve in one artery was hooked up and replaced by a murmur from regurgitation when the same was done in both arteries."

The following experiment was made by M. Bouillaud, to prove that the second sound of the heart is caused by the reflux of the column of blood upon the sigmoid and semilunar valves. He attached one extremity of a short glass tube, of an inch bore, to the aorta immediately *below* the semilunar valves, and to its other end a bladder full of water. Another tube, four feet long, was connected with the aorta *above* the semilunar valves, the bladder was suddenly compressed at intervals, so as to jerk up the fluid, and each time that the pressure on the bladder ceased, and the column of liquid was allowed to fall back upon the valves, a sound very analogous to the second sound of the heart was heard.

A somewhat similar experiment was made by Dr. Corrigan, but with a different result. He removed the heart and ascending aorta of an ass, and then " tied it on the end of a leaden tube of a corresponding diameter, about five feet long ; about two or three inches of the aorta then being free from the lower extremity of the tube. In this state, holding the sides of the aorta together below, he filled the tube with water, and then placing the thumb on the upper end, so as to close it, the fingers were withdrawn from the lower end, and the upper end still remaining closed, the external pressure of atmospheric air kept the two sides of the aorta below together, and no fluid escaped. The ear was then applied to the lower end of the tube, close to the aorta, and the thumb being suddenly withdrawn from above, the whole column of fluid came suddenly down, and distended the aorta and valves ; and yet there was no sound whatever similar to the second produced." He then " attached a piece of sounding-board, to assist the ear, and the result was the same as before."

Remarks on the foregoing theory.—The foregoing theory, it will be observed, omits from the elements capable of producing the sounds of the heart, all consideration of friction between the blood and the parietes of the orifices of the heart in its passage into and out of the ventricles, during their systole and diastole. Yet when we come to describe the abnormal sounds heard in diseased states of the valves and orifices of the organ, we shall find that this very element, which is rejected as incapable of producing the normal sounds, is set down as the one which almost exclusively gives rise to the abnormal sounds of the heart. Now when we consider the force and rapidity with which the blood is propelled by the ventricles particularly by the left, there can be no doubt that there is a considerable degree of friction between the blood and the parietes of the orifices through which it passes ; and that this can scarcely happen without producing sound, appears evident, because even a slight impediment to the current of blood is sufficient to convert the normal first sound of the heart into a murmur.

Thus in experiments made upon large animals, when the calibre of the aorta near its origin was narrowed by pressing upon it during the ventricular systole the first sound of the heart was converted into a murmur. Again, if the stethoscope is applied over a large artery, a short, slight single sound is heard at each systole of the left ventricle ; but, if pressure is made upon the vessel so as to diminish its calibre, a murmur will take the place of the normal sound. Again, the blood in its passage through the veins causes no sound appreciable to the ear : under certain circumstances, however, sound is developed in particular veins, when their coats are made tense, and when their calibre is diminished by pressure with the stethoscope. This sound is familiar to us as the venous murmur.

Now, in each of these instances, there is an obstacle or impediment to the passage of the blood and the increased friction, which necessarily ensues, is sufficient to convert the normal sound into a murmur. It seems probable, therefore, that abnormal sounds, are nothing more than exaggerated normal sounds, exaggerated because the friction between the blood and the parts through, or along which it passes, is increased ; and if we admit, as the foregoing instances seem to prove, that normal sounds can be converted into abnormal sounds, simply by increase of friction, it seems not ununreasonable to conclude that both are developed by the same agency.

In addition, we know, that in aneurism springing from the arch of the aorta, a double sound is constantly audible, and this double sound remarkably resembles the double sound of the heart ; so close indeed is the resemblance, that the second sound of aneurism in this situation is erroneously supposed by many to be the second sound of the heart transmited to the aneurismal sac. We also know that the first, or the second, or both the aneurismal sounds, are not unfrequently converted into murmurs, which have precisely the character of the murmurs heard in cases of valvular disease of the heart.

Now, in aneurism, in this situation, we have ply a sac communicating with a large artery a single orifice, which is constantly patent; sac is traversed by the blood propelled at ch systole of the left ventricle, and into it the ood regurgitates at each diastole of the ventricle; t every variety of normal and abnormal sound eveloped in the heart, with its muscular walls d valvular apparatus, may be produced also in a aneurismal sac which has neither the one or he other. It is scarcely, therefore, unreasonable to conclude, that the agent which is capable of generating sound in the one case is capable of developing analogous sounds in the other; and that, as sounds almost precisely similar to those of the heart, in its healthy as well as in its morbid state, can be produced independent of valvular extension, or muscular contraction, the latter are not such essential agents in the production of the heart's normal sounds as is generally supposed.

Theory of friction between the blood and the parietes of the orifices of the heart.—From what precedes, it would appear that sounds in every respect analogous to the normal sounds of the heart may be developed independent of valvular action, or of muscular contraction; while we know that the normal sounds of the heart are readily converted into murmurs simply by increase of friction between the blood and the parietes of the orifices of the heart. Now, when we consider the rapidity and the force with which the blood enters and is expelled from the ventricles; and when we consider the amount of friction which must necessarily take place between this fluid and the parietes of the orifices of the heart, it seems not unreasonable to refer the normal sounds of the heart to this cause, rather than to valvular action or muscular contraction: the first sound to the friction between the blood and the parietes of the arterial orifices during the ventricular systole; the second sound to the friction between the blood and the parietes of the auriculo-ventricular orifices during the ventricular diastole.

First sound.—The first sound of the heart we know is synchronous with the ventricular systole: in this act, the blood, compressed by the contraction of the powerful muscular walls of the ventricles, is propelled with considerable force into the aorta and pulmonary artery, the sigmoid and semilunar valves of which are suddenly elevated. In the rapid passage of the blood from a wider to a narrower area, there must be considerable friction between this fluid and the parietes of the arterial orifices; quite sufficient, in my mind, to produce the prolonged first sound of the heart. This sound necessarily has a distinct character from the second sound of the heart, because the resistance to be overcome is so much greater, and the passage of the blood through these orifices is more gradual; it is likewise more prolonged, because sound must be developed during the entire period that the blood is passing from the ventricles into the large arteries: and the slower the action of the heart, the more prolonged will this sound be.

Second sound.—The second sound of the heart we know is synchronous with the ventricular diastole: during this act the muscular fibres of the ventricles are relaxed, the cavity of the ventricles enlarges, and the walls of the ventricles re-expand; the curtains of the auriculo-ventricular valves open, and there is a sudden influx of blood from the auricles through the auriculo-ventricular orifices. It is scarcely necessary to say that it is not the contraction of the auricles which propels the blood into the ventricles at this period of the heart's action; nor is the dilatation of the cavities of the ventricles the result of the entrance of the blood from the auricles, as some have supposed. It is not either necessary for the production of this sound that the diastole of the ventricles should be an active process like the systole; the ventricles being hollow muscles, the state of relaxation of their muscular fibres is a state of dilatation of their cavities: hence a vacuum would be created in them if the auricles were not at this period full of blood ready to supply them; but, as the latter had been filling during the whole period of the ventricular systole, this cannot happen. and the blood passes through the auriculo-ventricular orifices in a full and rapid stream, and with sufficient force to generate sound.

That the blood enters the ventricles with considerable force, would appear from what has been observed in experiments upon animals, as well as in the human subject. Cruveilhier says that, in a case of ectopia of the heart in an infant, when the organ was grasped with the hand during the ventricular diastole, it was violently and forcibly opened,—so much so, that he was at first under the impression that the diastole was the active state of the ventricles.

The second sound of the heart is much shorter than the first sound, because the relaxation of the muscular fibres of the ventricles in the diastole is rapid, and the motion is sudden and instantaneous. It has a different character from the first sound, because the blood has no impediment to overcome in entering the ventricles from the auricles.

Objections to the theory of valvular tension as a cause of the first sound.—It is said that the heart, being a muscular organ, and its orifices being each provided with a distinct valvular apparatus, the contraction of the muscular tissue of the ventricles, or the action of its valves, ought to be capable of producing sound. Now the first sound of the heart cannot have its cause exclusively in the sudden tension or closure of the auriculo-ventricular valves, because this act takes place at the very commencement of the systole; and the first sound is a dull prolonged sound, which persists during the entire systole. That any part of this sound is produced by valvular action seems to be doubtful, because the curtains of the mitral and tricuspid valves are floated towards the orifices by the blood which distends the ventricles; and, when the ventricular systole commences, the auriculo-ventricular orifices are mechanically closed by the pressure of the blood against the curtains of these valves.

Objections to the theory of muscular contraction as a cause of the first sound.—It remains, therefore, to consider how far the first sound is due to muscular contraction. This is supposed to be proved by the first sound having been heard in experiments upon animals when the organ was removed from the body and continued to contract, because there was then neither collision of the blood nor valvular action; but when a heart contracts and dilates under such circumstances, air must enter the ventricles during their diastole, and be expelled during their systole, and the friction of the air against the parietes of the orifices of the heart is quite as capable of developing sound as the friction of a fluid.

Three theories of the manner in which sound is produced by the contraction of the muscular fibres of the ventricles of the heart have been proposed. Dr. Hope, as I have already observed, refers it to "muscular extension;" Dr. Blakiston,* to friction between the muscular fibres themselves during the act of contraction; and others, to "bruit musculaire."

According to Dr. Hope, the sound of muscular extension is "a loud, smart sound, produced by the abstract act of sudden jerking extension of the already braced muscular walls at the moment when the auricular valves close." With respect to this theory of the production of sound, I must confess I do not exactly understand how sound can be produced in this way at all resembling the first sound of the heart.

By many physiologists the first sound of the heart has been referred to "bruit musculaire," which, according to Mr. Bowman,† is "an exceedingly faint silvery vibration." The mechanism by which bruit musculaire is produced may (he thinks) be explained "by supposing the several fasciculi to be in rapid and constant motion, one against the other, by varying amounts of contraction in different fasciculi and parts of fasciculi." Dr. Blakiston's theory of friction between the muscular fibres, themselves, and Mr. Bowman's theory of the mechanism of bruit musculaire, seem, therefore, to be pretty nearly the same.

Laennec‡ was the first to call attention to bruit musculaire in connection with the sounds of the heart. In the part of his work where he endeavours to explain the mechanism by which bruit de soufflet is produced, he observes:—"When the naked ear or the stethoscope is applied over a muscle in a state of contraction, or, better still, upon one extremity of the bone to which the muscle is attached, we hear a sound analogous to that of the wheels of a carriage at a distance, and which, though continuous, is evidently formed by a succession of very short and quickly succeeding sounds; or if, with the head resting upon a pretty firm pillow, the masseter muscles are strongly contracted, and then contracted with less force; in the former instance the wheel seems to roll with great rapidity upon a hard surface, in the latter it seems to roll over a rough pavement."

Dr. Williams,§ who refers the prolongation of the first sound of the heart to bruit musculaire, observes:—"Whenever there is strong abrupt muscular action in any part of the body, like that of the heart, there will be heard a sound which will resemble that of the ventricular systole in proportion as the muscles in which it is produced resemble in thickness and density the tissue of the heart; as when we apply the stethoscope to the adductor muscle of the thumb of the closed hand, and contract the muscle strongly and quickly; or, to avoid the possibility of the joints being the seat of the sound, if we apply the end of a flexible tube to the abdominal muscles, and start them into sudden vigorous action, we may thus get sounds quite as loud as those of the ventricles, and very like them in character. By varying the mode of this muscular action different kinds of sound may be produced. When the contraction is slow or sustained, however strong, we have only the dull rumbling noise which *Dr.* Wollaston described, and which he *attributed to* a vibration depending on a regular intermittence in the force of the contraction. When the contraction is gentle and slow, it may cause no sound at all; as we have seen that the auricles produce no sound, neither do the ventricles when their contraction is very feeble."

Dr. Watson,* who likewise adopts the theory of bruit musculaire, observes, in reference to the first sound of the heart:—"If, during the stillness of the night, when lying in bed, you set the teeth firmly, you will hear a continuous dull *rumbling*, caused evidently by the action of the masseter and the temporal muscles."

Now, the dull rumbling sound which is heard under such circumstances, if it is to be taken as the type of bruit musculaire, is very unlike the first sound of the healthy heart. *It* is a continuous, dull, rumbling noise, and has a much greater resemblance to the venous murmur heard in the jugular veins in cases of anæmia than to it. Indeed, I am convinced that this sound *has not* its seat in the masseter or temporal muscles, for it is heard only in the ear which rests against the pillow, not in the opposite ear. The ear must likewise be pressed pretty firmly against the pillow, by which the air is confined between the tympanum and the external ear. Indeed, a sound altogether similar will be heard if the ear is stopped with the finger, and the temporal and masseter muscles are then strongly contracted. The sound has certainly nothing of the "faint silvery vibration" which, according to Mr. Bowman, characterises bruit musculaire; and the theory which refers the prolonged portion of the first sound of the heart to it, appears to me to rest upon too hypothetical grounds to entitle it to be considered as the cause of this sound, or of any portion of it.

Objections to the theory of the recoil of the blood upon the arterial valves as a cause of second sound.—The second sound of the heart is generally supposed to have its cause in the sudden extension or closure of the sigmoid and semilunar valves, owing to the recoil of the column of blood in the eries above upon those valves, when the ventrilar systole cases; or to the shock of the column blood upon these valves at the period of the ntricular diastole; or to both combined.

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* Practical Observations on Diseases of the Chest.

† Philosophical Transactions.

‡ Traité de l'Auscultation Méd. tome ii.

§ On Diseases of the Chest.

* Lectures on the Practice of Medicine.

That these valves close their respective orifices the period in question, there is no doubt; but, at the act of closure of these valves, or that the coil of the column of blood upon them, occurs th sufficient force to develope the second sound the heart, I have considerable doubt; and for veral reasons.

In the first place, the sigmoid and similunar alves close their respective orifices the very moment that the onward current from the venricles ceases; consequently at the instant that he ventricular systole ends.

2. The closure of these valves is described by some as a sudden flapping action, which is considered to be sufficient to develope this sound. But these valves do not flap against one another, and it connot be against the blood which then begins to enter the ventricles by the auriculo-ventricular orifices, because the arangement of the tricuspid and mitral valves is such, that the blood does not reach them at this period.

3. The majority of physiologists attribute the second sound of the heart to the recoil of the column of blood in the arteries above upon the closed valves. But the amount of force with which a column of blood should fall upon them, in order to develope the second sound of the heart, would necessarily soon cause these valves to be reversed; and, if they were exposed to such a rude shock at every diastole of the ventricles, few persons could attain adult age, in whom they would not permit regurgitation.

Those who adopt the foregoing theory of the mode of production of the second sound of the heart, seem to argue as if the arteries were inelastic tubes, and that the blood in the aorta and pulmonary artery had a backward as well as a forward motion. If this were so, it could hardly fail to be perceived in the large arteries which come off from the arch of the aorta: while for a column of blood to come in contact with these valves with sufficient force to develope the second sound of the heart, presupposes an empty space in the artery above them, into which the blood falls back each ventricular diastole. But as long as the artery preserves its elasticity, nothing of the kind can occur; the blood does not recoil with any force, or from any distance, upon these valves, because the artery immediately above them is filled equally with the other parts of the tube. In fact, the instant that the onward current from the ventricles ceases, the blood by its simple weight depresses these valves, and as long as the parts are healthy there is no recoil of a column of blood upon them. But when, as occasionally happens, the arch of the aorta loses its elasticity, and becomes dilated, there is then certainly a recoil of the blood contained in it upon the semilunar valves; and this state almost always eventually ends in patency of the aortic valves.

Pathological evidence in favour of the theory of friction between the blood and the parietes of the orifices as a cause of the sounds.—It will now be necessary to adduce some pathological evidence that the sounds of the heart are caused by friction between the blood, and the parietes of the orifices of the ventricles, during their systole and diastole. I have already said, that a double sound, which cannot be distinguished from the normal double sound of the heart, is heard in cases of aneurism of the arch of the aorta; and that in certain instances the first of these sounds, in others the second, and in others again both these sounds, are converted into murmurs, altogether analogous to the murmurs which accompany diseased states of the orifices and valves of the heart. That the aneurismal sounds are caused by friction between the blood, and the parietes of the orifice of the sac, requires no proof, because there is no other agency to which they could be referred. This is at least evidence that a valvular apparatus and muscular walls are not essential to the production of sounds analogous to those of the heart. The conditions common to both are a cavity into and out of which the blood passes with more or less force and rapidity; and if the friction between the blood and the parietes of the mouth of the sac of an aneurism is capable of developing, not merely a double sound, similar to that of the heart, but murmurs which differ in nothing from those developed in diseased states of the heart, the same agent is evidently equal to produce analogous sounds at the orifices of the ventricles.

First sound.—If the first sound of the heart has its cause in the friction between the blood and the parietes of the arterial orifices; and if murmurs are nothing more, in the great majority of cases, than exaggerated normal sounds, then the normal first sound of the heart ought to be converted into a murmur, whenever an impediment is offered to its exit; when the blood is propelled with increased force and velocity, or when the qualities of the blood are altered, and this fluid loses its viscidity and becomes more watery than natural; because in these several cases the friction between the blood and the parietes of the orifice is incre[illegible]d. The sound ought to diminish in intensity, or in duration, when less blood is transmitted by the ventricle, or when it is transmitted with less force; and it ought to be more prolonged than natural when an increased quantity of blood is transmitted by the ventricle during its systole: and this is exactly what does occur. For instance—

1. Whenever the aortic orifice or its semilunar valves become diseased so as to *obstruct* the outward current of blood, the normal first sound of the heart is converted into a murmur, which will have either a blowing, rough, or harsh character, according to the amount of the obstruction, and to the force and velocity of the current.

2. When the walls of the left ventricle are hypertrophied, and the blood is propelled through the aortic orifice with increased *force*, although there is no impediment to its exit, the normal first sound may be converted into a murmur. In the

ordinary explanation of the mechanism by which the first sound is produced, a murmur from this cause ought not to occur.

3. When the viscidity of the blood is diminished, and this fluid is propelled with increased *velocity* through the aortic orifice, the normal first sound is converted into a murmur.

4. When the walls of the left ventricle are thinned, and its cavity is dilated, the first sound of the heart comes to resemble the second sound, because the blood is propelled with less force, less blood is transmitted through the arterial orifice, and the systole lasts a shorter time.

5. When the walls of the left ventricle are softened, or have undergone the fatty degeneration, the first sound of the heart becomes more feeble, because the blood is propelled into the aorta with much less force; and, when the aortic orifice or the semilunar valves are diseased so as to obstruct the outward current from the ventricle, no abnormal sound will be heard, because the force of the current in such cases is too feeble to convert the first sound of the heart into a murmur.

6. When the cavity of the left ventricle is dilated, and its walls are increased in thickness, a larger amount of blood will be transmitted at each ventricular systole, and the first sound of the organ will necessarily be prolonged.

7. When the cavity of the left ventricle is not filled at the period of its systole, the first sound of the heart will be diminished in proportion, and will consequently be shorter than natural. M. Piorry attributes clearness of tone to the amount of blood contained in the ventricle, rather than to thinness of the parietes: "the sound is clearest (he observes) when the heart is most empty, yet is contracting with energy, as in palpitation."

It may be objected to the foregoing theory that the abnormal sound does not always replace the normal first sound of the heart, and that the latter is still heard in some cases of valvular disease along with it. But as valvular disease is almost limited to the left side of the heart, the abnormal sounds are limited in the same proportion to the left side; and, if the normal sound is audible along with the abnormal, it is, of cours[illegible]he normal sound of the right side of the organ [illegible]ch is then heard, and which the murmur was not sufficiently intense to mask completely.

Second sound.—If the second sound of the heart has its cause in the friction between the blood and the auriculo-ventricular orifices, it ought to diminish in intensity whenever there is any impediment to the entrance of the blood from the auricle, or when the ventricle remains distended, owing to its inability to empty itself. This sound is very seldom converted into a murmur, because there is nothing to increase the force with which the blood enters the ventricles from the auricles, though there are several which may diminish the force or velocity of the current from the auricles into the ventricles. For instance—

1. When the mitral orifice is much contracted, the second sound of the heart will diminish in intensity; and, when the contraction is extreme, it is scarcely audible, because but little blood enter the ventricle from the auricle during ventricular diastole.

2. When the ventricles of the hearts of anim submitted to experiments were gorged with bloo the second sound was scarcely heard, or cease because a sufficiently strong current of bloo could not enter the ventricle to develope sound. This was noticed both in the experiments performed in the United States and in England. "The second sound (Drs. Pennock and Moore observe) by the congestion of the ventricles ceasing first on the right side." "When the heart was gorged, towards the conclusion of the experiments, the first sound (Dr. Hope observes) only was heard."

3. Although the second sound itself is seldom converted into a murmur, a murmur which masks the second sound is by no means rare, and is heard whenever the aortic valves permit regurgitation. Why a murmur should be heard in this case, or why the second sound of the heart should be seldom converted into a murmur, is easily understood. When the mitral orifice is contracted, less blood can enter the ventricle during its diastole, and the second sound becomes more feeble than natural: it is not converted into murmur, because the force with which the blood enters the ventricle from the auricle is too slight to produce this effect. On the other hand, when the aortic valves permit regurgitation, as these valves are on a higher plane than the auriculo-ventricular orifice, and as it is the blood contained in the aorta above these valves which regurgitates into the ventricle, the amount of friction between the blood and the abnormal orifice is sufficient to generate a murmur in this case, though not in the former: but, the force with which the blood regurgitates into the ventricle never being so great as that with which it is expelled from the ventricle, the murmur of aortic regurgitation is always soft and blowing, and never acquires the rough harsh character which a systolic murmur often presents.

In addition, we know, that when patency of the aortic valves exists, two currents of blood must enter the ventricle at every diastole; that through the aortic orifice being the strongest, for the reasons already given: a smaller amount of blood will therefore necessarily enter by the auriculo-ventricular orifice, and the force with which it enters will be diminished, because the ventricular cavity is partially filled by the backward current through the aortic orifice. Hence we have another reason why the normal second sound should become more *feeble than natural*, and why it should be so readily masked by the louder sound of aortic regurgitation.

Lastly, the occurrence of intermission of the heart's sounds, or irregularity of the heart's action, which are with difficulty explained on the theory of the heart's sounds ordinarily received, admit of a ready explanation on this. For instance—

If too little blood is expelled by the left ventricle at each systole to communicate a pulse to radial artery, and if this occurs at every ond, third, or fourth beat, as the case may be, re will necessarily be an intermission of the se ; while, if the amount of blood is too small, the force with which it is propelled too slight occasion friction at these periods between the od and the parietes of the orifice, the heart's nds themselves will be intermittent.

If the left ventricle becomes overloaded or erdistended with blood, or its parietes are weak, e systole of the ventricle may be repeated several mes for one diastole ; and this may occur at short tervals, so that the pulse may be felt to give veral rapid and small beats, and then several ronger and more regular beats, as if it were the ulse of two different persons ; and the same regularity will be perceived in the sounds of the eart when the stethoscope is laid on the præcorlial region.

These phenomena, which scarcely admit of explanation according to the ordinary theory of the eart's sounds, admit of a ready explanation if we admit that the sounds are due to the friction between the blood and the parietes of the orifices of the ventricles ; that if little blood is transmitted, or it is transmitted with little force, little sound can be produced ; while, when the force and velocity of the circulation are increased, the friction will be increased in proportion ; and, when an impediment is offered to the passage of the blood under such circumstances, the normal sound will be converted into a murmur.

Examination of the heart in disease—Signs furnished by inspection of the chest, and the application of the hand—Impulse of the heart—Diminution of the impulse—Increase of the impulse—Alterations in the situation of the impulse—Sound produced by the impulse of the heart—Turgescence and pulsation, and of the jugular veins.

EXAMINATION OF THE HEART IN DISEASE.

The anatomy and physiology of the healthy heart having been dwelt upon at sufficient length, we have next to consider the heart in disease, and to describe the several methods of proceeding, in order to determine the nature, the situation, and the extent of the morbid changes. And here we shall find the advantage of the preceding details, inasmuch as we shall be in a position to recognise readily any alteration in the heart's impulse, either as respects its strength, or the situation in which it is felt : we shall be able to detect any difference in the extent and degree of the heart's superficial dulness, or any change in the character of its sounds.

In cases where the heart is diseased, or suspected to be so, several distinct methods of examination require to be employed ; the eye, the touch, the ear, are each capable of affording us assistance in arriving at a diagnosis, and the indications afforded by each mutually assist the others. These methods of examination may for convenience sake be considered under the heads—inspection of the chest ; palpation, or the application of the hand to the parietes ; percussion ; and auscultation—upon each of which it will now be necessary to delay for a short time.

Signs furnished by inspection of the chest, and the application of the hand.—Inspection of the chest,—in other words, the examination of the external surface of the thorax, and the application of the hand to the præcordial region,—should never be omitted ; they are capable, alone, of affording positive information in several diseased conditions ; they aid and assist our other means of arriving at a diagnosis ; and, as preliminary steps to other and more difficult methods of exploration, they can scarcely be dispened with, if we wish to make an accurate examination.

As these two methods of physical examination mutually assist one another, they may be considered together. Thus, by inspection of the chest we determine the exact point at which the apex of the heart comes in contact with the parietes of the chest, and by the application of the hand we determine the amount and the strength of its impulse. By inspection of the chest we ascertain whether the two sides of the thorax are symmetrical, and we detect any protrusion in the præcordial region ; by it we recognise unusual pulsation at any part of its parietes, in the large arteries which come off from the arch of the aorta, as well as in the jugular veins, or in the epigastric region ; by the application of the hand we determine the strength and force of the pulsation ; we judge of the frequency or slowness of the heart's action, and of the regularity and irregularity of its movements. By the application of the hand, likewise, we recognise the peculiar phenomenon known under the name of frémissement cataire, or purring tremor ; and by the same means we can detect friction between the opposed and roughened surfaces of the pericardium in inflamed states of the membrane.

Impulse of the heart.—The application of the hand to the præcordial region is necessary in order to judge of the strength or feebleness of the heart's impulse : with this view, the hand may either be placed directly upon the surface of the chest, or, holding the ear end of the stethoscope, we apply its opposite extremity to the part, when the extent to which the instrument is elevated, and the force with which this is accomplished, will give us a pretty accurate idea of the strength of the heart's impulse. This kind of mediate palpation is principally useful in hypertrophy, or hypertrophy with dilatation, of the ventricles.

The impulse of the heart varies, even in healthy individuals, according to the development of the chest, according to the size of the lungs, according to the fatness or leanness of the individual, according to the stature of the subject, and to the size of the abdomen. In the healthy subject, with a well-formed chest, the impulse of the heart is so slight as not to be perceptible to the individual himself, and is felt only at one point—viz. between the cartilages of the fifth and sixth ribs on the left side ; that is, from one to two inches below the nipple, and to the sternal side of this point When the parietes of the chest are much loaded with fat, the impulse is often scarcely perceptible to the hand; while in thin persons it is evident also to the eye. In such cases, when the heart's action is vigorous, it will be perceived to be double; and this in certain states of disease becomes very perceptible.

In examining the heart, it is necessary to bear in mind that the impulse is somewhat stronger in the erect than in the recumbent posture; that in a forced inspiration the impulse is diminished, and felt slightly lower down than natural; a deep inspiration elevating the ribs without raising the heart in the same degree, while it depresses the diaphragm. That in a forced expiration the impulse becomes more perceptible, and is felt slightly higher up; a forced expiration depressing the ribs and elevating the diaphragm. It may therefore be necessary to make the patient vary his position, and to examine the heart both during inspiration and expiration. In some individuals the impulse is naturally weak; in others naturally strong: the same may be said of the pulse and of the sounds of the heart, although the parts are in a perfectly normal condition in each. As the impulse is increased by exercise, or exertion, or by mental excitement, we should be careful to examine the heart, suspected to be diseased, when the patient is perfectly calm and tranquil.

In some morbid conditions of the heart or lungs the impulse is either very slight, or altogether absent. In others it is so strong as to be disagreeable to the individual, and to be visible without removing the patient's clothes, and the extent of surface over which it is felt is much increased. In others the impulse becomes perceptibly and strongly double; and in others again the seat of the impulse is altered.

Diminution of the impulse.—Diminution of the impulse of the heart may depend either upon feebleness of the action of the heart, which may have its cause in disease or alteration of its muscular tissue, or in general debility of the system; or it may depend upon the apex of the organ being prevented from coming in contact with the parietes of the chest with sufficient force to communicate an impulse, owing to disease in the lungs or pericardium.

The impulse of the heart is circumscribed or feeble in softening of the heart, and in atrophy of its muscular substance with fatty degeneration of its tissue. In states of considerable general debility it is feeble. The impulse is diminished likewise in attenuation of the walls of the ventricles, with dilatation of their cavity. If the anterior margin of both lungs is emphysematous, and they overlap the heart, the apex may be prevented from coming in contact with the parietes, and the impulse will be much diminished. In cases of considerable effusion into the sac of the pericardium, the impulse is absent altogether, or it is unequal and undulating, as if propagated through a fluid. In cases even of hypertrophy with dilatation of the ventricles, the impulse may be diminished, "it becomes a mere oppressed struggle," if the heart is overloaded with blood and the lungs are much congested.

Increase of the impulse.—Increase of the impulse of the heart, as a general rule, occurs under the very opposite conditions of the organ to those under which diminution of its impulse is observed, and in almost every instance has its cause in some morbid state of the heart itself. The impulse is stronger than natural in hypertrophy of the walls of the left ventricle, and it arrives at its utmost limit in hypertrophy with dilatation of the ventricles: in such cases the impulse is slow, gradual, heaving, double, and occasionally so violent as to shake the bed on which the patient lies. The character of the impulse of the heart thus becomes a most valuable sign of hypertrophy with dilatation: "the slow, progressive, heaving impulse could be produced by no other cause." In such cases, likewise, the extent of surface over which the impulse of the heart is felt is much increased, and the whole side of the chest is sometimes elevated by the movements of the organ. It is in this form of disease that the double impulse is so well marked, the diastole as well as the systole of the ventricles being accompanied by an impulse: this is sometimes termed the back stroke of the heart,—more correctly the diastolic impulse. The ventricles may, however, be hypertrophied, M. Piorry observes, without the impulse being *much increased*. He says, that in aged females at *the Salpetrière* very little impulse is often felt, although the heart is frequently much thickened; while in nervous subjects with small hearts the impulse is frequently very strong. He is of opinion that increased impulse is to be considered "an indication rather of the force of the blow than of the thickness of the parietes of the ventricles."

In hypertrophy with a predominance of dilatation, the impulse, as Laennec observes, is abrupt, short, and knocking, and in the fits of palpitation the shock resembles the blow of a hammer. "The blow seems (as Dr. Hope remarks) to strike a small space: it expends itself, as it were, on the thoracic parietes, and does not communicate a heaving proportionate to its force." "It differs from the impulse of great hypertrophy, in the circumstance that in the latter the ventricles in a distended state seem to heave with their whole length against the thoracic parietes, which yield to the effort, while in the former the point only of the heart seems to strike the parietes with a sharp, smart, accurately circumscribed blow, only capable of producing a sort of concussion rather than a real heaving."

The impulse of the heart is stronger than natural in the early stage of endocarditis and of pericarditis; likewise in attacks of palpitation from any cause; and it is apparently stronger when a morbid growth behind the heart protrudes the organ forwards, as in certain rare cases of aneurism in the descending portion of the thoracic aorta. The impulse becomes sharper and more knocking in nervous and hysterical subjects, partiularly during fits of palpitation; in such cases it often very troublesome to the patient, and is ccasionally accompanied by perceptible sound, hile its double character can, not unfrequently, e recognised.

Alteration in the situation of the impulse.—The ituation at which the impulse of the heart is felt not unfrequently altered by disease, either of he heart itself, of the lungs, or pleura, by the evelopment of morbid growths in the cavity of he thorax, or by morbid or other changes in the contents of the cavity of the abdomen; and these alterations in the side of the impulse may be the esult either of the increased volume which the heart itself attains, or of displacement of the entire organ. Thus—

In hypertrophy of the left ventricle with dilatation of its cavity, the heart being increased in length, its impulse will be felt lower down than natural, and more to the left side, and not unfrequently on a line with the axilla. In hypertrophy with dilatation of the right ventricle, the impulse will, for the same reason, be felt lower down and more to the right side than natural, and not unfrequently on a line with the xyphoid cartilage. In the former case the impulse is progressive, heaving, and strong, elevating the head of the observer, and is felt over a much larger surface than natural; in the latter the impulse is neither heaving, prolonged, or very strong, and is felt usually over a circumscribed space.

The entire organ is displaced laterally in cases of empyema, or where liquid to a considerable extent has been effused in the pleural cavity on either side; towards the left side when the right pleural cavity is its seat, and towards the right side when the left pleural cavity is its seat: in the latter case the impulse is frequently felt upon the right side of the sternum. The heart is pushed upwards, and the impulse is felt on a plane higher than natural, in ascites, in cases of large ovarian or other abdominal tumors, in hysterical tympanitis, and the advanced stages of pregnancy. The heart is displaced slightly downwards in cases of emphysema of both lungs of long standing, and the impulse is felt on a plane lower than natural, not unfrequently in the epigastric region. In cases of effusion of fluid into the pericardial sac, the impulse is felt sometimes at one, sometimes at another part of the præcordial region. In individuals with narrow, deformed, or contracted chests, the impulse will be felt beyond its normal limits. In individuals, on the other hand, with broad and expanded chests, the site of the heart's impulse is usually circumscribed.

Sound produced by the impulse of the heart —Although under ordinary circumstances sound is not produced by the impulse of the heart, and no shock or blow is given to the parietes of the chest by the apex of the organ during the ventricular systole—the intercostal space between the cartilages of the fifth and sixth left ribs being merely elevated by the apex of the heart in the gliding movement performed by it at this period of the heart's action —yet, under certain circumstances, sound is really produced by this act, which in certain rare cases is sufficiently loud to be heard without the stethoscope, and at a short distance from the patient, and is audible to the patient himself.

Corvisart only once witnessed this phenomenon. Laennec states that in at least twenty instances which he met, this sound was sufficiently loud to be audible at a distance of from two inches to two feet from the patient's chest. "In only three or four of these cases at the utmost, organic disease of the heart existed; in all the others the palpitation was purely nervous. Bruit de soufflet and fremissement often existed in a slight degree in the heart, but particularly in the arteries of those who presented this phenomenon."

In order that sound should be produced by the impulse of the heart, the organ must act strongly, the subject must be thin, the heart must be a good deal uncovered by lung, and the apex of the organ must come in contact with the rib or its cartilage with sufficient force to produce sound.

According to Dr. Hamernck, "all true heart-sounds are heard by mediate or immediate auscultation only." "This sound, however, is heard at a distance from the chest, and is considered by him to depend upon the motion imparted to the surrounding elastic tissues by the heart's systole." According to Dr. Hope, the manner in which the sound is produced is as follows: "The heart in gliding forwards and upwards during its systole strikes with its apex against the *inferior margin* of the fifth rib, and thus creates an accidental sound, attended with *cliquetis* when the blow is smart. It may be prevented at pleasure, by pressing the edge of the stethoscope, or any thing else, into the intercostal space, by which that space is put internally on the same plane as the rib, over which the heart then glides without catching." He adds, that "he has never found the sound to occur in any but the meagre, because in the well-conditioned the intercostal spaces are full and resistant; and consequently the edge of the rib is not exposed."

"I infer," Dr. Hope observes, "that the *tinnitus* itself proceeds simply from reverberation of sound within the cone of the stethoscope." Dr. Williams, in reference to the same point, remarks—"The metallic clink originates in the ear of the observer, and has nothing to do with the heart, further than that it is excited by the blow which the heart communicates to the ear. We may hear the very same note by laying the ear flat upon a table, and tapping the under side of the table just opposite to it. I believe this to be the proper note of the tympanum. We often hear it on auscultation, and when once aware of it, it is easily recognised as belonging to the observer, and not to the patient. It is easily produced when the heart strikes against the ribs, and the external knocking sound is added to the intrinsic systolic sound." In order to hear the metallic clink, M. Bouillaud says "it is better not to employ a stethoscope, but to apply the ear immediately upon the patient's chest." "This sound (he observes) being sometimes heard with the naked ear when it would be inaudible with the stethoscope."

Turgescence and pulsation of the jugular veins.—Among the signs which are evident on inspection of the chest, and which accompany the advanced stage of some forms of cardiac disease, a state of permanent turgescence or distension of the jugular veins, with or without pulsation, is by no means unfrequent. The former is the most common, and may occur in any case in which an impediment exists to the free passage of the blood through the right side of the heart. The latter is observed in cases in which, in addition, the tricuspid valve imperfectly closes the right auriculo-ventricular orifice, and free regurgitation into the auricle is permitted at each systole of the right ventricle.

Turgescence and pulsation of the jugular veins were first noticed by Lancisi as signs of cardiac disease. He referred them to dilatation with hypertrophy of the ventricles, or, as it was then termed, "aneurism of the heart." Corvisart had little confidence in them as signs of disease of the right side of the heart. Laennec, however, regarded the turgescence without pulsation of these veins as a frequent attendant upon dilatation of the right cavities of the heart, and he says that "pulsation in the same veins was present in every case which he had met with of considerable hypertrophy of the right ventricle."

The internal and external jugular veins receive the blood from the interior and exterior of the head, from the face and neck. Now if there is any impediment to the free passage of this fluid through the right side of the heart, whether depending upon disease in the right or left side of the organ, or of the lungs, these veins become distended and turgid. If, in addition, the tricuspid valve does not perfectly close the right auriculo-ventricular orifice, a portion of the blood, at each systole of the right ventricle, instead of passing into the pulmonary artery, will be transmitted backwards into the right auricle, and will re-act upon its contents, and through it upon the blood descending by the superior cava and its branches, when a pulsation will be communicated to the jugular veins at each systole of the right ventricle, which will persist although pressure be made upon the vein above it.

Turgescence of the jugular veins.—The diseased condition of the heart in which turgescence of the jugular veins is most frequently observed is dilatation of the right auricle and ventricle, with or without hypertrophy of the same parts. It is, however, by no means to be considered as a symptom belonging exclusively to this form of disease, for it is often the result of obstruction, or regurgitant disease at the left side of the heart. It may accompany any impediment to the free circulation of the blood through the cavities of either side of the heart. It is observed sometimes in aneurism of the arch of the aorta, as well as in diseased conditions of the lungs, accompanied by obstruction to the pulmonary circulation. The turgescence is usually limited at first to the external jugular veins, particularly on the right side: it is not constant, and can always be removed by compressing the vein above. Eventually both the internal and external jugular veins become distended and turgid, sometimes to an extreme degree. This state is permanent, though it can still be removed by pressure upon the vein higher up. In some few cases, the veins, in addition to being dilated, become tortuous, and present the appearance with which we are familiar in the varicose state of the veins of the lower extremity.

Pulsation of the jugular veins.—The veins in which pulsation is observed are the internal jugulars, those vessels not being provided with valves like the external. The pulsation is always most evident immediately above the clavicles, and it may extend half-way up the neck when the latter is short; but I have never found it to reach higher. It is usually best marked on the right side, and is frequently perceived upon both sides, and sometimes, though rarely, only on the left side. The pulsation is too feeble in the great majority of cases to be felt by the finger, but, in several instances which have come under my own observation, a pulsation was communicated to the finger placed lightly upon it. This could not be confounded with the pulsation of the artery underneath, which is likewise generally increased at the same time; as, it was very feeble, was perceptible only on slight pressure, and disappeared when this was increased, when the impulse of the artery alone was felt.

The movement in jugular pulsation is rapid, vermicular and double, the backward current of blood forming the first and strongest movement, and the direct current its second and slighter movement. According to Dr. Sibson, there is in the healthy state "a constant visible pulsation, both in the deep and superficial jugular veins, which pulsation, though perfectly visible, cannot be felt." It is much diminished, and in many persons rendered invisible, during a deep inspiration. "The mere existence of jugular pulsation (Dr. Sibson observes) is anything but an indication of disease, either in the pulmonary valves, or elsewhere." "In those diseases (he adds) where the flow of blood through the lungs and heart is impeded, the jugular veins contain more blood, and their pulsations are more visible than in health; but where the impediment is extreme, the veins are in a state of constant distension, and no pulsation is visible."

Pulsation of the jugular veins is present in every case in which the tricuspid valve imperfectly closes the right auriculo ventricular orifice, and in which free regurgitation occurs at each ventricular systole, provided the walls of the right ventricle are sufficiently strong to communicate a backward impulse to the current of blood which descends by the jugular veins. Hence it is almost always observed in hypertrophy with dilatation of the right cavities of the heart. Pressure upon the vessel between the site of the pulsation and the heart is always sufficient to stop it.

Fremissement cataire, or purring tremor—Circumstances under which fremissement cataire is felt—Cause of fremissement cataire—Signs furnished by percussion—Alterations in the extent and degree of the heart's superficial dulness—Conclusions respecting percussion of the præcordial region.

THE cause of jugular pulsation was first satisfactorily explained by MM. Bertin and Bouillaud—viz., that it depends upon regurgitation into the great veins during the contraction of the right ventricle; and this theory of its cause has been almost universally adopted. Dr. Hope, however, supposed that it might have its cause in the recoil of the tricuspid valve upon the blood, when the hypertrophied ventricle contracted with increased force, and that the column of blood descending into the ventricle would be repelled with sufficient force to propagate its impulse as far back as the jugular veins. From the explanation which has been given of the manner in which the curtains of the auriculo-ventricular valves close their respective orifices, it would appear that jugular pulsation could scarcely be produced in that way. Why regurgitation is permitted at the tricuspid orifice so frequently, as well as the exact manner in which it occurs, have been already alluded to in treating of the "safety-valve function of the tricuspid valve."

FREMISSEMENT CATAIRE, OR PURRING TREMOR.

Another sign which is recognised only by the application of the hand to the parietes of the chest is the "fremissement cataire" of Laennec, the "purring tremor" of English writers, the "frottement fremissement ou vibratile" of Gendrin; named so by Laennec, from its resemblance to the peculiar sensation experienced if the hand is laid upon the back of a cat when the animal is making the peculiar purring sound which it does when pleased; and compared by M. Bouillaud to the thrill felt on placing the hand upon the larynx of a person singing. It is a peculiar thrill, or vibratory sensation, very easily recognised, sometimes perceptible on very slight pressure upon the part, sometimes requiring a stronger pressure in order to be felt, and communicated equally by the large arteries as by the heart.

This phenomenon had been recognised as a sign of cardiac disease previous to the discovery of auscultation. Corvisart, speaking of the symptoms of disease of the left auriculo-ventricular orifice, observes—"Among the symptoms of this affection there is a peculiar confused sensation, difficult to describe, felt by the hand applied to the præcordial region." He supposed it to indicate a contracted state of the mitral orifice, causing an impediment to the passage of the blood from the left auricle into the left ventricle. Burns evidently alludes to this phenomenon when he speaks of a "jarring motion accompanying the pulsation of the heart;" and, as he noticed it in several cases where, on a post-mortem examination, the opposed surfaces of the pericardium were found to be adherent, he attributed it to this lesion, causing an impediment to the free action of the heart.

Fremissement cataire is not limited to the heart, but is perceptible also in the large arteries, and in aneurism, particularly in varicose aneurism, in which it is often better marked than in the heart. It is felt over the large arteries when the lining membrane of these vessels is extensively diseased, as well as in cases where no morbid alteration of the parts exists; and its cause, or the mechanism by which it is produced, do not seem to have ever been fully explained. Laennec* observes—"It would seem that the immediate cause of a phenomenon so marked as frémissement cataire would be easily discovered. I confess, however, that, notwithstanding the pains which I have taken in this respect, I have not been able to find any satisfactory reason." "It appears to me (he adds) extremely probable that it is owing to some peculiar modification of innervation." M. Bouillaud,† in the second edition of his work on the heart, expresses himself in somewhat similar terms:—"What are the other causes capable of producing this phenomenon (he observes) I am ignorant. It appears to me that there is a certain condition of the blood, as well as of the parietes of the heart and arteries, which favours its production. But in spite of the assiduous researches to which I have devoted myself on the subject, I have not yet been able to determine properly all these conditions."

Circumstances under which fremissement cataire is felt.—In every instance in which fremissement cataire is felt, a murmur of some kind is audible on auscultation, which is frequently blowing, and sometimes rough or harsh. It is obvious, therefore, that the cause which produces the latter is connected with the cause which gives rise to the former; but, as fremissement cataire is not felt in *every* case in which an abnormal sound is heard, it is obvious that there must be something superadded when the latter is felt to allow of this peculiar sensation being communicated to the hand.

The morbid condition of the heart in which this phenomenon is most generally perceptible is where the left auriculo-ventricular valve permits regurgitation, and the ventricle is at the same time hypertrophied. The morbid conditions in which it is felt in the arteries are where the aortic valves permit free regurgitation, or where the arch of the aorta is dilated, its lining membrane rough and irregular from adventitious deposit, and the large vessels which come off from its arch are likewise dilated; where an aneurismal sac springs from a large artery, where a free communication exists between a vein and artery, as in varicose aneurism; or, finally, where the blood is altered, its viscidity diminished, its watery parts increased, and the vessels are in an unfilled state.

Two or more of the foregoing states may be combined together, by which the thrill will be increased. Thus dilatation of the arch of the aorta may be combined with disease of its lining membrane, and both may be combined with a state of the aortic valves permitting regurgitation; or dilatation of the large arteries, or regurgitant disease of the valves of the heart, may be combined with a state of anæmia and alteration of the blood.

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* Auscultation Mediate, tom. ii.

† Traité des Maladies du Cœur, tom. i.

Cause of fremissement cataire.—In every case in which fremissement cataire is felt, whether in the heart, or in the arteries, or in aneurism, the cavity or the vessel is in an *unfilled* state. Thus in the heart it becomes perceptible when the mitral valve permits regurgitation; in the large arteries, when the aortic valves are patent, when the arteries themselves are dilated, when an aneurism exists, or when a communication exists between a vein and artery. In several of the foregoing cases, regurgitation of the blood occurs; this presupposes an unfilled state of the vessel or cavity: it could not occur if they were distended. Now I consider this unfilled state of the vessels combined with a certain amount of force and velocity of the current of blood to be the immediate cause of this phenomenon: the thrill or vibration communicated to the hand being more marked when the lining membrane of the part is rough or irregular from disease.

For instance, we can produce a fremissement at any time in a large artery in a healthy subject by making pressure upon it; the thrill is not felt at the point upon which the pressure is made, nor between it and the heart, but at the distal side of the point of pressure, and where the vessel must necessarily be in an unfilled state; a murmur is heard at the point compressed, and both cease as soon as the pressure is removed. We know, too, that a thrill, identical with fremissement cataire, is felt in cases where the heart and arteries are perfectly healthy, but where the vessels are in an unfilled state, as in anæmia, depending upon hæmorrhage or other causes.

A certain amount of force and velocity of the current of blood appears to be likewise necessary to its full development; because we find that this phenomenon sometimes diminishes or even disappears in diseased states of the heart, when the action of the organ becomes tranquil, and that it reappears again when the heart's action is excited by exercise. It disappears likewise when the action of the heart becomes feeble, and ceases altogether in the last stage of valvular disease when the circulation through the heart is much impeded

The jarring pulse in the radial artery, with which we are familiar in cases of patency of the aortic valves, appears to be nothing more than the fremissement cataire felt in an artery of small calibre. The thrill communicated to the finger is characteristic of an unfilled state of the arteries, and becomes perceptible whenever the semilunar valves of the aorta imperfectly close the orifice, or when regurgitation occurs into the aorta from the large arteries which come off from its arch. The same character of the pulse is observed in cases where profuse hæmorrhage has occurred; and in a less marked degree in cases of anæmia from other causes.

Fremissement cataire may or may not be a sign of organic disease; in the majority of cases it is: thus, whenever it is felt in the præcordial region, accompanies the ventricular systole, and is well marked, it indicates valvular disease; and the form of valvular disease which will be found under such circumstances is a state of the mitral valve or orifice permitting regurgitation. In the large arteries, on the other hand, a fremissement may be felt, although no organic disease of the vessel exists. In some instances this phenomenon is perceptible when the hand is laid gently upon the parietes: in others stronger pressure is required in order to develop it. Thus in varicose aneurism, the result of a wound of an artery and vein, a thrill is communicated to the finger on the slightest touch; while in cases of anæmia some pressure upon the artery is often required in order to make it evident.

A peculiar thrill or vibration is occasionally perceptible in the region of the heart, that must not be confounded with the phenomenon just described, and which arises from the direct friction of two rough surfaces during the motions of the heart: here it depends upon the friction between the opposed layers of the pericardium, which are roughened in consequence of the deposition of lymph upon them; the thrill has a different character from that of fremissement cataire, and is felt at a different part of the præcordial region. A somewhat similar feel is occasionally experienced when the hand is laid upon the side in cases of pleuritis or pleuro-pneumonia with false membranes; in bronchitis, likewise, when the sonorous râle is loud, a sensible vibration is sometimes communicated to the hand: in the latter cases, however, it accompanies the respiratory movements, not the heart's action.

SIGNS FURNISHED BY PERCUSSION.

The præcordial region includes the whole of that portion of the chest beneath which the heart is situated; and, in a healthy subject with a well-formed chest, the extent of surface in this region which yields a dull sound on percussion is limited. We have seen that the lungs are in contact with the greater portion of the anterior surface of the thorax, and, of course, wherever they are, the sound elicited by percussion will be clear. Where the anterior margin of the opposite lungs separates from one another, the anterior surface of the heart comes in contact with the thoracic walls, being only separated by the pericardium and cellular tissue.

The portion of the heart uncovered by lung is very small, seldom exceeding two inches in any direction: it has a triangular shape—the base below, the apex above; it consists of a portion of the apex of the right ventricle, and of part of the left ventricle near its apex, and is seated on a plane below the nipple and the fourth left rib: its base is on a line with the cartilage of the sixth left rib; its apex is at the point where the margins of the opposite lungs begin to separate from one another; its right boundary (which is constituted by the thin edge of the right lung) is nearly a vertical line through the centre of the sternum; its left boundary (which is constituted by the thin margin of the left lung) is an oblique line through the cartilages of the fifth and sixth left ribs.

This, then, is the only portion of the heart which in the healthy subject is in contact with the parietes of the chest, and it is the only portion of the præcordial region which yields what can be termed a dull sound on percussion. It is not, however, quite correct to term this a dull sound: it is less dull than that yielded by the hepatic region: the liver being a solid organ, and the heart hollow, the sound elicited by percussion over the former is more dull than over the latter. Indeed, as Dr. Latham* observes, "percussion here conveys to the ear a sense rather of less resonance than of positive dullness." "If the percussion used be but of moderate force, you must listen attentively to make sure that the resonance is really less here than elsewhere. It is only when the percussion used is of a force somewhat painful to the patient, that the ear begins to acknowledge a positive dullness." On strong percussion, likewise, a difference in the sound can be detected where the thin margin of the lungs covers the heart. The sound here is intermediate between the clear sound heard on percussion over the lungs, and that yielded by the part of the præcordial region where the heart is in contact with the parietes of the chest. We can thus, as M. Piorry remarks, trace the vertical and transverse diameters of the heart, and we can measure its size from above downwards, and from side to side. The extent of the surface of the heart which is naturally in contact with the parietes of the chest is diminished somewhat, it must be recollected, in the supine posture; still more by taking a full inspiration. It is increased by leaning forward, and still more by a forced expiration.

In employing percussion in cases of disease, we may commence the examination of the præcordial region either above, below, or laterally; we may trace the sounds yielded by the lungs above and upon each side to this region; or, commencing below, we may trace the sounds from the region of the stomach, and of the left lobe of the liver, upwards. The mode of manipulation recommended by Dr. Hope† is "to lay one finger over the decidedly dull part, and another over the slightly resonant edge of the lung, when, by striking the two fingers alternately, the arched line along which the organ lies in contact with the walls may be traced with surprising accuracy, unless the subject be remarkable for obesity, which obscures the resonance." "In females, the mammæ may be pushed upwards, which generally leaves the dull portion sufficiently accessible."

Alterations in the extent and degree of the heart's superficial dulness.—The extent of surface in the præcordial region which yields a duller sound than natural on percussion is seldom diminished, owing to diseased states of the heart; but it is very often enlarged, while the degree of dulness is not unfrequently at the same time increased. The space will be diminished if the heart is congenitally smaller than natural, or if the lungs are largely developed; and it will disappear if the anterior margin of both lungs is emphysematous, and their edges meet in front of the organ. But, as the heart is generally somewhat enlarged under the latter circumstances, a portion of its anterior surface will still come in contact with the parietes, but the space which yields a dull sound will be on a plane somewhat lower than natural.

The region of the heart's superficial dulness will be increased whenever the heart is enlarged, or whenever fluid to any amount is effused into the sac of the pericardium; in the latter case the degree of dullness will be likewise much more marked. Thus, if the walls of the ventricles are hypertrophied, or if their cavities are dilated, a dull sound will be elicited by percussion over a wider surface; and the extent of this surface will be in some degree a measure of the increased size which the organ has attained: the enlarged heart pushing aside the lungs, and a larger portion of it coming in contact with the parietes in the præcordial region. When the two foregoing conditions are combined, the heart attains the largest size that it is capable of, and the præcordial region may yield a dull sound over a square surface of from four to six inches, in place of two. When the hypertrophy predominates over the dilatation, the space which yields a dull sound is greatest from above downwards; when dilatation predominates over the hypertrophy, the region in which a dull sound is yielded is greatest transversely. In pericarditic effusion, likewise, a large surface in the præcordial region yields a dull sound, while the degree of dulness is much more pronounced, and the amount of fluid effused may be pretty accurately measured by the extent of the dulness on percussion.

When a dull sound is elicited by percussion over an extensive surface in the præcordial region, the situation in which it is most marked, and the amount or degree of dullness, will be a guide as to its cause. When it depends upon enlargement of the heart, the site of the dullness is lower down, and more to the left side, than when it depends upon liquid effused into the sac of the pericardium. As the pericardial sac extends upwards to a level with the articulation of the second rib on the left side with the sternum, and sometimes, as I have found to be the case, as high as the first rib, if a large amount of fluid is contained in this sac a dull sound will be elicited by percussion as high as this point; while the degrees of dulness on percussion over a fluid is always much more marked than over the heart itself. It is said that hypertrophy may be distinguished from simple dilatation of the ventricles by the degree of resistance to the fingers employed in percussion being greater in the former than the latter; but there are other and better signs by which these conditions of the heart may be distinguished.

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* Lectures on Diseases of the Heart, Vol. I.

† Treatise on Diseases of the Heart, 4th edit.

The results furnished by percussion are, however, sometimes doubtful; for instance, when the margins of the lungs are emphysematous, and approach each other in the præcordial region, a clear, instead of a dull sound will be yielded in the natural situation of the heart's superficial dullness. When the lungs are solidified, either as the result of pneumonia or of tubercular infiltration, or from any other cause, a dull sound will be yielded upon each side of the heart over a considerable surface. When the heart is displaced, owing to liquid effusion into either pleura, or to some morbid growth in the cavity of the thorax, the region of the heart's superficial dulness will be altered.

Conclusions respecting percussion of the præcordial region.

1. The region of the heart's superficial dulness in the healthy adult subject does not exceed two inches in any direction. This space is on a plane below the nipple and the fourth left rib; its centre about the middle of the cartilage of the fifth left rib.

2. The sound elicited by percussion here is not absolutely dull unless pretty strong percussion be used.

3. The region of the heart's superficial dulness may be diminished, or it may be increased, or the degree of dulness may become more marked, owing to disease. It is much more frequently increased than diminished.

4. It will be diminished if the heart is naturally small, or the lungs are large and overlap the organ; and it may disappear if the anterior margin of both lungs is emphysematous.

5. It will be increased whenever the ventricles are hypertrophied, or their cavities are dilated, or when fluid is contained in the pericardial sac.

6. The seat of the diminished resonance always extends higher up, and is more extensive, as well from above downwards as laterally, when much fluid is contained in the sac of the pericardium, than when hypertrophy or dilatation of the heart exists.

7. The degree of dullness is always much more pronounced when fluid is contained in the sac of the pericardium than when the heart is enlarged.

THE

PATHOLOGY AND TREATMENT OF CONVULSIVE DISEASES,

BY R. B. TODD, M.D. F.R.S.

Introductory remarks—Definition of Convulsion—Subdivision of convulsions—Choreic—Tonic or tetanic—Clonic or epileptiform—Chorea typical of the first class—Choreic convulsions in gouty and rheumatic states, in white softening of the brain—Tetanus typical of the second: to be classed with it, Trismus nascentium, and Laryngismus—Epilepsy typical of the third, including convulsions of infants, puerperal convulsions, convulsions from renal or hepatic disease. Clinical history of chorea, two varieties, general and partial—Acute chorea—Non-symmetrical character of the choreic movements—Peculiar movement of the tongue—Paralysis following chorea, and preceding it—Disease of the heart accompanying chorea; this due to rheumatism—Choreic patients often of the rheumatic diathesis—Chorea not a fatal disease—Affections analogous to chorea—Peculiar affection of the hand—Fidgets of children—Points in the clinical history of Tetanus—Clinical history of Trismus nascentium—Of Laryngismus stridulus—Of Epilepsy, phenomena accompanying the fit—Paralysis after epilepsy—Acute Epilepsy—may occur without morbid lesion of the brain—Convulsions of infants—Toxic epilepsy—Puerperal convulsions.

Through all science which depends upon, and, as it were, grows out of observation,—out of the observation not of to-day or yesterday, but of years and ages,—it is of vast importance that its cultivators should from time to time review the existing state of knowledge, examine well the bases on which it rests, and inquire whether the foundation be secure, and whether any change, either by addition or subtraction, should be made in the superstructure: as they to whom is confided the custody of some time honoured edifice, planned, it may be, by the constructive genius of one man, but reared by the laborious industry of many, at various periods diligently inspect its foundations, search for such defects either in them or in the superstructure, as the less perfect architecture of a previous age may have suffered to exist, and supply these defects by alterations or additions suggested by the progress of knowledge, and the accumulation of experience.

Great advances have been made of late years in our knowledge of the physiology of the nervous system. We can now study the morbid phenomena of that system by the light which a more exact anatomy and physiology of it throws upon it, and likewise with the most important and valuable aid of larger views of pathology, and a more intimate knowledge of the various causes, whether external to, or inherent in the body, which are capable of disturbing the normal action of the nerves or the nervous centres.

On this account I have chosen as the subject of these papers a class of diseases, still obscure, but which the progress of general pathology seems likely to rescue from the darkness in which they have hitherto been shrouded. I propose to discuss the pathology of those diseases of which that kind of muscular action, to which the term *Convulsions* may be applied, is, if not a constant symptom, at least a very frequent one, and *the prominent one* when they are present.

It will be necessary for me to state *in limine*, that under the general term *Convulsion* I include all those irregular actions of sets of muscles which are wholly unrestrainable by the influence of the will, and which are excited and kept up by a physical irritant. Thus if the flexors of a limb are thrown into action of this sort, I would say they are convulsed, designating the peculiar mode of convulsion with which they are affected, and so also with larger sets of muscles, and the entire muscular system.

Under this definition of the word convulsion I would refer to three distinct kinds of convulsions, each of which denotes a different cause, and is produced by an affection of the nervous system distinct in kind as well as in position. These are, the jactitating, or chorea-like, or choreic; tonic, or tetanic; clonic, or epileptiform.

The first kind are peculiar jerking movements affecting the muscles of a limb, or of one side of the body and of the face: the movements are exceedingly irregular, wholly uncontrollable by any effort of the will, and only affected by it in this way, that an effort of the will directed upon the disordered muscles tends not to restrain, but greatly to augment the disturbance. There is in general no augmentation of power in the choreic convulsion; on the contrary, it is accompanied by a state of great debility and of imperfect muscular nutrition: sometimes it is preceded by a paralytic state, and not unfrequently it is succeeded by it. If any attempt be made to restrain the convulsive movements, they immediately become increased in force and frequency, and there is danger that under a continuance of the restraint a partial or limited convulsion may be converted into a general one. Lastly. The choreic convulsions, however general and rapid, are controlled in the most perfect manner by sleep.

The second, or tonic or tetanic convulsion, is a state of greatly increased muscular tension, which never experiences any complete relaxation, but every now and then undergoes a sudden increase of tension. A muscle thus convulsed may be compared to the string of a violencello, screwed up to concert pitch, and from time to time made more tense by a sudden turn of the regulating screw, which gradually allows it to return to its former tension. In these convulsions there is doubtless a preternatural development of the muscular force, to such an extent that some of the fibres become ruptured by their own force of contraction. Convulsions of this kind may be exactly imitated by the transmission of the galvanic current in rapid succession through the spinal cord, or by the continuous transmission of the *inverse* current for half an hour through a limb; when, upon the interruption of the current, the muscles of that limb suddenly assume the tetanoid state, which last for a few seconds,—or they may be developed by the poison of strychnia.

The third, or clonic or epileptic convulsion, consists of powerful active contractions of sets of muscles, resembling a succession of forcible voluntary contractions. Each act of contraction is rapidly succeeded by a state of relaxation, and again as rapidly followed by a fresh contraction, and so on until the muscular force is well nigh exhausted, or the exciting force is worn out.

The power of these contractions is always great, sometimes extraordinary; so that the combined effort of several strong men is inadequate to hold the patient down: this kind of contraction is not favourable to the rupture of the muscles, but bones are sometimes broken in the epileptic convulsion. I have known even so strong a bone as the femur to have been broken by the muscular struggle.

Having thus defined the nature of the three forms which, I believe, include every variety of disturbed muscular action to which the term convulsion can be applied, I shall proceed to enumerate the various diseases which are characterised or accompanied by these unnatural manifestations of muscular force, and then take a rapid glance at the main features of their clinical history, which will form the premises whence we are to draw our conclusions regarding the pathology of these diseases.

The first class of convulsions is met with in the typical malady, chorea, and in states resembling chorea, although differing from it in many particulars.

The only other conditions under which such convulsions take place, so far as I am aware, are in particular rheumatic and gouty states, and in white softening of the brain, connected with, and probably arising from, a morbid state of arteries.

The type of the second class of convulsions is that formidable malady, Tetanus, the clinical history of which, as resulting generally from wounds, is now so well known.

Along with this I would class that remarkable affection which attacks infants, which has received the various designations of spasmodic croup, cerebral croup, *Laryngismus stridulus*.

The disease called *Trismus nascentium*, better known in the West Indies than in this country, is also very nearly allied to, if not identical with, tetanus.

I would name Epilepsy as typical of the third class of convulsions, and in the same category with it would come the common convulsive fits of children, the convulsions which affect puerperal women, &c.

My remarks on the clinical history of these various maladies will be made in the order in which those diseases have been referred to.

And first, of Chorea.—The disease is one of early life, very rarely occurring after puberty has been well established; and if it do occur later than the ordinary period of life, when the signs of puberty are developed, it is generally found that those signs have not as yet distinctly manifested themselves in the patient. The period to which chorea is most properly restricted is that between 6 and 15 years of age. Of 189 cases observed by Rufz in the children's hospital at Paris, 10 only occurred before 6 years; 179 between 6 and 15; and of the latter number, 118 occurred between 10 and 15.

It affects girls in much greater proportion than boys. Of the 189 cases collected by Rufz, 138 were in girls, 51 in boys.

The muscles affected in this disease are all those connected with the cerebro-spinal nervous system,—those of the head, face, trunk, and extremities. It is very doubtful that even the so-called organic muscles ever suffer; and if the heart is involved at all, its affection is probably of an entirely different kind, and takes place in a different manner from that of other muscles.

The examination of the phenomena of a great number of cases of chorea will show that the disease exhibits two varieties, namely, general chorea and partial chorea; and that the former may be either acute or chronic.

General Chorea.—In *general chorea* the whole external muscular system is involved; the patient is unabled to stand or walk; speech is either quite destroyed, or so inarticulate that it is impossible to understand what is said,—such is the disturbed state of the muscles that no voluntary action can be properly performed. The tongue is protruded with the same peculiar jerking effort which accompanies all the other muscular actions; and one wonders that, as it emerges from the mouth, it escapes being injured by the teeth, which the irregular actions of the masticatory muscles press convulsively against it.

The patient, unable to stand, is obliged to remain in bed; and there tosses from one side to another, sometimes rolling incessantly to such an extent that the friction of the most prominent parts of the body against the bed causes stripping and ultimately troublesome sores. And when the agitation is violent, these patients literally shake themselves to death, which is brought on by the exhaustion induced by these unceasing movements.

When the convulsive movements are so violent and unceasing as I have now described them, the disease may be called *acute*, for it must destroy the patient, or cease, in a few days.

Happily, however, this form of the disease is rare, and general chorea occurs most frequently in a more chronic form; the movements, however, being of the same character, less frequent and less active, and with longer intervals of sleep, which restores the patient and provides fresh strength for new agitation.

Partial chorea.—The most common form of *chorea* is the *partial*. It is needless for me to enter upon any detailed description of the phenomena of a disease which must be so familiar to all my hearers. I will just point your attention to a few of its leading features.

1. The affection is not symmetrical, that is to say, one side of the body is more frequently affected than both; or if both should be affected, one is always much more so than the other. In general, this difference of affection of one side remains with that side whichever it may be; but in rare instances there is a disposition to shift, and for two or three days the right side will be chiefly affected, and then for a longer or shorter period the left side will exhibit the most active movements. This tendency to shift calls to mind a prominent feature of certain rheumatic and gouty affections.

2. Of all the movements which accompany chorea, that of the tongue is the most *peculiar and* characteristic; indeed I would *call it pathognomonic*. The patient protrudes the tongue with a peculiar thrust to the fullest extent of which it will admit; frequently this is done by one effort, at other times it requires two or three attempts before it can be accomplished. And the subsequent retraction is also peculiar: the tongue is drawn back, supported and guided by the pressure of the teeth, and often very slowly and with great caution. Sometimes this peculiar mode of protrusion of the tongue is the precursor of the other choreic symptoms; and if we had frequent opportunities of seeing the cases very early, I have no doubt that this symptom would be found more frequently the harbinger of the more extensive affection. I have, from this symptom only, been able to predict with accuracy that an attack of chorea was coming on.

3. The choreic convulsion is frequently succeeded by a paralytic state of the limbs previously convulsed; the convulsive movements cease, and the limbs remain paralysed; the paralysis is seldom complete, although considerable. When the choreic convulsion had affected one side, the paralysis will likewise affect the same side; it will be *hemiplegic*, and will resemble very closely hemiplegia from diseased brain, for which it is very apt to be mistaken by those not aware of this fact. Not long ago a boy was brought to my house for me to advise whether the hemiplegic paralysis under which he suffered should be treated by antiphlogistic means, such as mercury, &c. I soon discovered that the case was one of choreic paralysis, and advised steel and shower baths, and

exercise of the limbs; under which he rapidly recovered.

In a very few instances paralysis *precedes* the choreic convulsion, but so far as my observation informs me, it is then accompanied by the peculiar thrust of the tongue; by this sign I have been enabled to distinguish it.

That paralysis may occur in this way is evidently a fact of the highest practical interest, whilst it is not devoid of importance as bearing upon the pathology of the disease. Nevertheless I do not find it noticed in any of the descriptions of the disease in the practical works which I have consulted. The previous history of the case, the absence of any other symptom referable to the head, and the gradual mode of invasion of the paralysis, in addition to the peculiar mode of protrusion of the tongue, will always enable the careful practitioner to distinguish this paralysis from that caused by cerebral lesion.

4. The heart is very frequently morbidly affected in chorea; and this morbid affection shows itself, not in any disturbance of *the rhythm* of the heart, which, so far as my observation extends, never is disturbed, but in a derangement of its sounds. A bellows sound is frequently present, and is either aortic systolic, when it is almost always an accompaniment of the anæmic state of the patient, but *much more frequently* it is *mitral systolic* or *regurgitant.*

I am surprised that this feature of the clinical history of chorea has not attracted more general attention. It has been well known to me for many years, and I described it in the Croonian lectures on the pathology of rheumatism, which were given by me in this theatre six years ago. But to my friend, Dr. Addison, of Guy's Hospital, is due, so far as I know, the merit of having first made public the frequent occurrence of this bellows sound in chorea.

What is the cause of this sound? is it due to any irregularity in the muscular action of the heart? a choreic state of that, as of the external muscles, whereby the action of the valves is disturbed? or is it caused by a morbid deposit on the mitral valves, which prevents their precise action; or can it, like the aortic sound, depend on the anæmic state of the patient?

I shall answer the last question first. The closure of the mitral valves is the result of the mechanical accumulation of fluid in the ventricle, which presses the valves towards the auricle, their tension being maintained by the chordæ tendineæ: this effect will be produced no matter what may be the nature of the compressing fluid; a mere colourless state of the blood cannot produce mitral regurgitant bellows sound; some imperfection, either of the valves themselves, or of their mode of apposition, must exist in order to produce such a phenomenon.

It is plain, then, that the bellows sound must be caused by some disturbance in the action of the mitral valves. What, then, produces the valvular derangement? Can it be any disturbance of the muscular action of the heart, any choreic state of the musculi papillares? I apprehend not; for as the closure of the valves is not accomplished by the action of the muscles, it would not be affected by any such irregular muscular action. Moreover, no such choreic state of the heart's action could take place without its being indicated by a disturbance of the heart's rhythm, which, of course, would be very readily detected.

Hence, then, we cannot resist the conclusion, that the mitral bellows sound in these cases is due to such an organic lesion as prevents the complete closure of the mitral valves during the systolic effort of the heart.

But now we are met with another question not less important. What can have created this morbid state of the mitral valves? It is rare to meet any symptom of heart affection, either preceding or accompanying the chorea; and the valvular imperfection is often overlooked, and only discovered by careful auscultation of the heart's sounds.

The true answer to this question is, I believe, to be found in the fact that many of the patients who suffer from chorea are of a rheumatic diathesis, and that in consequence of this rheumatic state they experience an insidious endocarditis which generally affects the mitral valves.

The proof that rheumatic diathesis and chorea are frequently met together, is derived from these facts,—that many of the sufferers from the latter malady, when carefully examined, are found to have previously suffered more or less from chronic articular pains, to have sprung from rheumatic or gouty parents, and to exhibit deranged secretions, such as occur in rheumatic states. I have seen many instances of choreic children passing urine of high specific gravity, loaded with lithates, and sometimes precipitating lithic acid in very notable quantity, and for a considerable time. Choreic patients often suffer from rheumatic fever; and, as the subjects of that fever are very liable to its recurrence, so a child who has once had chorea is apt to have it again and again.

The history of the following case will serve as an illustration of the kind of connection which sometimes exists between chorea and rheumatic fever.

Alfred Brewer, æt. 14, had good health until his eighth year, when he had an attack of rheumatic fever. Four months after this he became affected with general chorea. He was cured of this in seven weeks. A year afterwards he had a second attack of chorea, which affected the left side chiefly. From this time he continued well for four years, then he had another attack of rheumatic fever, which lasted three weeks, and six weeks after this he was seized with his third attack of chorea.

Chorea does not occur in children whose nutrition is in a healthy state, but in those whose digestive powers are feeble, or who are badly fed, either by too abundant and ill-adjusted diet, or by food defective both in quantity or quality. It is not unreasonable to expect to find many rheumatic subjects among such patients, especially among the children of the poor, who are exposed to the inclemencies of the weather.

Lastly, the history of chorea shows that its natural tendency is to recover, and that it very seldom proves fatal. Of the 14,725 deaths which occurred in London in the quarter ending at Christmas 1848, only one was from chorea; and, in the corresponding quarters of the seven previous years, the deaths from the disease did not exceed one, excepting in the year 1844, when there was the curious exception of six deaths from chorea registered; and in 1845, there was no death from that cause.

When we take into account the large number of children affected with this disease, as the records of every hospital and dispensary will show; and when we remember how many of these cases are neglected, left solely to nature, receiving neither care nor medical assistance,—we are fully justified in laying it down as a feature of the disease, that its natural tendency is to get well.

Whatever morbid disturbance may take place in any of the internal organs calculated to give rise to chorea, it may be presumed from the facts I have detailed, that it is not such as does not admit of easy amendment; and the few post-mortem examinations on record of patients dead of this disease, show that it leaves behind it no trace of any lesion in any organ of the body likely to produce it. In some of the cases no morbid lesion of any kind could be detected; and it cannot for a moment be imagined that the slight opacities of the arachnoid, the effusion of liquid in the spinal canal, the marks of chronic ovarian disease, noticed in other cases, could at all have the relation of a cause to the phenomena of the disease. How many hundreds of spinal effusions, or opaque arachnoids, or irritated ovaries, have there been without the slightest indication of chorea!

So far for such points in the clinical history of chorea as may serve me as a basis for my argument respecting its pathology.

I have already stated that movements analogous to those of chorea may occur in rheumatic or gouty states. I have known such affections of the upper, and more rarely of the lower, extremity. The affection consists in a sort of fidgetty restlessness of the limb, and a difficulty, and sometimes an impossibility, of accomplishing certain actions with anything like accuracy or precision. In the cases which have come under my own observation, there has been a considerable development of the gouty constitution.

There is a curious affection, of which I have met with two examples in my own practice, and of which five or six have been recorded by Albers of Bremen: the prominent feature of it is the inability to hold a pen and to write for any time. The patient begins to write—writes two or three words—when the hand forthwith is spasmodically extended, the fingers cease to be controllable, and the pen falls away from them. If the patient attempts to control his pen hand with the other hand, or if any one else does it for him, the movements become worse, and he suffers excessive pain up the arm; yet all other actions are well done, and the power of the hand to grasp is good. One gentleman thus affected is a man of considerable mental endowments, and he has found it so impossible to overcome the irregular movements of his hand, that he has trained himself to write with his left hand, which he can now do with such facility, that he can carry on an extensive correspondence.

There can be no doubt that the impairment of speech, which is sometimes a forerunner of cerebral mischief, and which ought always to be regarded as a warning of such an invasion, is of this character. Emotional excitement will cause hesitation of speech in many healthy persons; many can do certain things very well if allowed to take their own time, but if hurried and flurried they are apt to bungle about them very seriously.

In one instance I found well-marked choreic convulsions of the right arm, with disturbed intellect, and gangrene of the toes, associated with extensive colourless softening of the left cerebral hemisphere, involving the optic thalamus.

Allied to the movements of chorea are the fidgets of children, and, perhaps, also those of grown persons. In some children these fidgetty movements are so excessive that the child becomes almost a nuisance in a room. All the muscles are affected; the child incessantly makes grimaces of the most various kinds; every minute he assumes a new attitude; if anything comes in his way he must handle or touch it; and these irregularities are always the greater when there is derangement of general health. Children thus affected might readily be thrown into the convulsions of chorea by a strong mental emotion.

My second class of convulsive affections is typified by the well-known malady, Tetanus.

The points to which I would beg your particular attention in the clinical history of this disease are these:—

1. The little variation of the symptoms in different cases of tetanus as compared with each other. If you see one well-developed case of tetanus, you have seen all; the variations are only as to the degree of tetanic convulsion; in all you have the tetanic face, the rigid limbs, the locked jaw, the opisthotonos. In the acute form of the disease, indeed, the malady runs its course with much greater, sometimes with extraordinary rapidity; while in the more chronic form it lasts a fortnight or three weeks, and in a few a much longer period.

2. The fact, now abundantly proved, that these symptoms occur without any lesion of the nervous system appreciable by aided or unaided vision; and what is equally remarkable, the artificial tetanus (if I may so speak) caused by the administration of strychnine in large doses, occurs equally without the slightest lesion of any part of the cerebro-spinal axis. I have examined, with the most scrupulous care, the spinal cords of rabbits which died in strong tetanic convulsions, kept up for some time after by large doses of strychnine, but I could not discover, even with the highest powers of the microscope, any indication of deranged structure.

3. The curious and interesting fact, that tetanus often appears endemically, and its development is favored by some localities much more than by others. Thus it is well known that the disease, not only in its traumatic but also in its idiopathic form, is much more common in the West Indies than in more temperate climates; and it seems pretty well proved that under modern improvements in diet, ventilation, and cleanliness, as well as under a better mode of treatment of wounds, the disease has become much less common in that climate than formerly. Even in this country we meet with curious instances of several cases occurring in rapid succession in the same locality from exciting causes, which, although themselves frequent and common, have rarely before been followed by the same results.

4. The tendency in tetanus is to death by exhaustion and asphyxia. The frequent return of the attacks of spasm, affecting all the muscles of the trunk, have a most exhausting influence upon the patient; and as the respiratory muscles, and even the muscles of the larynx, are generally more or less involved, the respiratory function becomes seriously impeded. Hence, the most fatal sign is a rapid recurrence of the convulsive attacks, and the most auspicious sign is the prolongation of the intervals between them. Practically the disease should be regarded as one of extremely fatal tendency, and therefore requiring the diligent interference of art to counteract its debilitating influence.

The disease called *Trismus nascentium* is essentially the same as acute tetanus affecting infants, and due to a peculiar state of system developed under deleterious local influences. Under modern improvements in diet, cleanliness, and ventilation, this disease is rapidly vanishing from this country, and has diminished considerably even in the West Indies. Dr. Clarke, by means of good ventilation, reduced the mortality from this disease in the Dublin Lying-in Hospital from seventeen per cent. to five or six; and in Dr. Collins' mastership of the same hospital, extending from 1826 to 1833, the mortality from this disease had fallen to a mere fraction per cent.;* and Dr. Colles states that by adopting the plan of plunging the infants daily in cold water, and dressing the umbilicus with turpentine, the disease, on a particular estate in the West Indies, from having been exceedingly frequent, became so rare as scarcely to be met with.

I have classed with the diseases accompanied by tetanic convulsions, that curious, and sometimes highly dangerous disease of infants, the laryngismus stridulus, as it is now generally named, because it has many points of resemblance to tetanus, and because I am of opinion that its pathology is essentially the same with that of that disease.

The features of this disease to which I beg your particular attention are these—

1. That the laryngeal spasms are truly tetanic, and occur in paroxysms: differing, however, from the ordinary tetanus in this, that a more complete relaxation of the muscles takes place in the intervals between the paroxysms, and that a considerable period often elapses before a recurrence of the paroxysm takes place.

2. As in tetanus the paroxysm is brought on by the sudden application of external stimuli, as by a sudden draught of cold air, a start, by sudden mental emotion, by the attempt to swallow, so the same causes tend to produce the paroxysm in the laryngismus.

3. Tetanus sometimes does not extend beyond the muscles of the jaw and throat: this is more frequently the case with laryngismus, but very frequently in the latter disease the tetanic convulsion extends to other muscles: the muscles of the extremities become engaged, and the so-called *carpo-pedal* spasm is induced; the limbs being stiffened, the wrists flexed, the thumbs turned in, and firmly bent into the palm of the hand, and at the same time a similar condition of the ankle and foot, and an inversion and flexion of the great toe. With these there is frequently well-marked opisthotonos, sometimes not extending beyond the cervical and dorsal regions, sometimes affecting the whole spine. During the paroxysm the child's consciousness is unaffected, and after its cessation the child returns to its previous state, appearing no otherwise changed than being more or less exhausted by the greater or less violence of the paroxysm.

4. Laryngismus does not manifest itself in robust and healthy children, but in children often weakly, but always in a state of depraved nutrition, from irregular and imperfect feeding, bad air, and frequently from the irritation of teething. A strong, healthy, well-fed child never exhibits laryngismus. Frequently the similarity of nervous constitution, as well as the mode of dieting of children in the same family, favours the development of the malady in successive brothers and sisters about the same period of infancy; and hence we often hear of instances of seveal members of the same family having been carried off in infancy by this malady.

5. There can be no doubt that under the continued operation of the exciting causes of the disease, laryngismus tends to a fatal result. It exhibits no spontaneous tendency to recover. Death takes place in some cases apparently from rapid asphyxia, much in the way it sometimes does in the cases of rapid development of œdema glottidis, or from the attempt to respire carbonic acid gas; generally the infant dies from exhaustion, brought on by the frequency of the paroxysms, and augmented by the injury to the respiratory function which each paroxysm causes. In such cases the mode of death is exactly as in tetanus. But in a third class the long continuance of the impaired nutrition generates a morbid state of brain, epileptiform convulsions are superadded to the tetanic convulsion, and dropsy of the ventricles takes place, favoured by the retardation to the venous circulation which these frequent attacks

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* See Collins' Midwifery, p. 518.

occasion, and also, sometimes, by the deposit of tubercular matter in the course of the venæ magnæ Galeni which return the blood from the ventricles and the choroid plexus; and thus the patient dies with all the phenomena of hydrocephalus.

I come now to notice the clinical history of a class of convulsive diseases which is far more common and much more formidable in appearance than any of the others to which allusion has been made, but which is much less fatal than those of the tetanic kind.

And I shall take first the typical malady—*epilepsy*. This disease is characterised mainly by the occurrence at intervals sometimes remarkably uniform in duration, of attacks of loss of consciousness, frequently sudden, often preceded by some kind of warning. These attacks last for a longer or shorter interval, when the patient recovers, as if awaking from a sleep, but continues in a drowsy state for a variable term.

In by far the greatest number of instances these attacks are accompanied by a loss of *voluntary* and *locomotive* power, so that the patient, on the supervention of the attack, falls down, and is thrown into convulsions of the character which I have already described by the name of epileptiform convulsions. These continue for some time—they subside—the state of insensibility remains—and for a variable time the patient continues in a profound sleep, or in a state of heavy drowsiness.

The phenomena which precede the fit vary infinitely, not only in their nature, but in their intensity and in their duration. In by far the majority of cases the precursory symptoms of an attack consist in a disturbed state of sensation, or of intellectual action. Thus the patient has headache, or a sense of giddiness, or some altered state of vision, causing motes or flashes of light, or other more complicated ocular spectra. Sometimes hearing is affected: the patient complains of tingling in the ears, and noises in the head. Or smell may be disturbed, as in the case mentioned by Heberden, where a smell of musk ushered in the attack.

The more complicated precursory phenomena also illustrate my position: thus with one of my patients the warning came on five minutes before the attack, and consisted in a feeling of terror, with violent tremors, and the fancy that he saw persons coming up to him and impeding his attempts to move on. Dr. Watson quotes from Dr. Gregory the curious instance that with a patient of his the warning consisted in the phantom of a little old woman in a red cloak coming sharply up to him and striking him on the head.

Not unfrequently before a fit the patient becomes delirious, sometimes raving mad; then comes the regular paroxysm, and when sensibility returns, the delirium again sets in, and remains for some time. The knowledge of this fact lately saved me from what might have proved a serious interruption and inconvenience. A gentleman, who had had one or two paroxysms of epilepsy, came to my house one morning to consult me: having talked quite sensibly for a short time, he suddenly seemed to lose himself, and then talked incoherently. This excited my alarm: I sent for a cab, and went home with him, and had just arrived at his door when he was seized with one of the most violent and one of the longest fits I ever saw.

The aura epileptica is a disturbance of sensation; but it is remarkable how extremely rarely this phenomenon, so often referred to by writers, is met with. It very seldom happens that we meet with an example of it presenting even a near approach to the description given of it by writer after writer.

The loud unearthly shriek which often ushers in the fit is probably excited by some sudden disturbance of sensation—some severe pain—which causes the patient to cry out, but which the sudden invasion of the epileptic state dissipates from his memory.

In most cases of epilepsy all the voluntary muscles are engaged, but in many instances those of one-half the body are much more convulsed than those of the other, and in some the convulsions are altogether limited to one-half the body. I have frequently seen the most intense convulsion of the arm and leg and side of the face on one side, while the corresponding parts on the other side were perfectly quiescent. The action of the heart is very much accelerated in the fit; the terror which its approach induces greatly excites this action, and this excited state continues for some time after the fit has subsided. A dilated condition of the pupil almost invariably accompanies the fit, however slight it may be.

Epilepsy is a disease of all periods of life: it seems not improbable that it may commence even *in utero*, being first developed by some powerful emotion excited in the mother, or due to some other disturbing influence upon the nervous system of the embryo.

Bouchet and Cazanvielh, from sixty-six observations, obtained the following results regarding the periods of life at which epilepsy is most apt to occur:—that from birth to 5 years there were 18 epileptics (9 being congenital;) from 5 to 10 years, 11; to 15, 11; to 20, 10; to 25, 5; to 30, 4; to 35, 1; to 40, 2; to 45, 1; to 55, 0; to 60, 1.

A paralytic state remains sometimes after the epileptic convulsion. This is more particularly the case when the convulsion has affected only one side or one limb: that limb or limbs will remain paralytic for some hours, or even days, after the cessation of the paroxysm, but it will ultimately perfectly recover. This is a form of paralysis in a great degree analogous to that of chorea.

There is an acute form of epilepsy, as there is a chronic form also. The acute form is distinguished by the number and violence of the fits, and the rapidity with which they succeed each other: so violent are the fits, that they exhaust, and if long continued, kill the patient. I have seen patients exhibit a rapid succession of fits for a whole day, with intervals of not more than five or ten minutes, and the exhaustion induced by them has been so great that I have been forced to give stimulants in large quantities to keep the patient alive.

In the chronic form the disease is remarkable for the kind of periodicity which regulates the development of the paroxysms: thus the fit will occur once in 24 hours, or once in 48 hours, or once a week, or once a month, but not with unvarying exactness as to the interval, nor without many disturbances to the ordinary rate of its occurrence. Although this periodicity exhibits some analogy to that of ague, it wants greatly its precision.

Of the tendency to the propagation of epilepsy by hereditary descent there can be no doubt. Cazanvielh and Bouchet make this remarkable statement: 14 epileptic mothers had 58 children: of this number 37 died, the eldest at 14, the rest nearly all of convulsions; 21 were living, of whom 14 were healthy, still young, and 7 already epileptic.

Epilepsy seldom kills: in the record of deaths we meet comparatively few deaths from that cause: epileptics die nominally of other diseases: they are liable to the vicissitudes of other men—accidents, and consequent injuries, not unfrequent (and to these their epileptic condition peculiarly exposes them,) fevers, diarrhœa, cholera, &c. These dispose of a large number of them; but a considerable proportion gradually fall into dementia or other forms of insanity, and then they become classed with the insane.

The tendency of epilepsy is to the destruction of the nervous force, in the brain especially, but ultimately throughout the whole cerebro-spinal centres. The earliest indication of the failure of the nervous power is in the weakening of the perceptive powers and of the memory. No doubt the power of attention suffers primarily, and then the retentive faculty becomes damaged. In this way only can we explain the fact that the power of memory for events of *recent* occurrence suffers first, the patient recollecting old events, or facts stored in the mind at a remote period, as well as ever. Ultimately, however, the memory of events of all kinds and at all periods is lost, and the patient becomes fatuous. This failure of the intellectual powers takes place the more rapidly as the paroxysms are more frequent and more severe: it will occur more surely where the fits have been accompanied with much mental disturbance or stupor, than where the convulsive character predominates. Frequent attacks of the epileptic vertigo of Esquirol—*the petit mal*—are in general pretty certain precursors of a state of dementia or fatuity.

It is an important feature in the clinical history of epilepsy that the fits sometimes cease spontaneously, or without any cause which can be recognised. Many a remedy for epilepsy has acquired the credit of curing the disease, when it has happened to be exhibited in a case in which this spontaneous tendency to recovery has manifested itself.

Epilepsy and insanity frequently go together: in some cases the epilepsy precedes, and, as it were, induces the insanity; in others the insanity has the precedence; and in a third class the patients are insane only for a short time before, and for a short time after, the epileptic paroxysm, and then resume a tolerably healthy state of mind until the access of the next paroxysm.

A remarkable and most interesting point in the clinical history of epilepsy is that it may go on for a considerable time, even in its most acute form, without the existence of any morbid change in the brain to be recognised by our means of examination.

Nothing is more certain than that not only one, but several paroxysms of epilepsy may be induced in a person whose brain and spinal cord present all the ordinary appearances of health.

The congestion which is apparent in the brains of epileptics, but which is seldom present excepting in those who have died in the fit, or very shortly after it, is attributable entirely to the impediment to respiration, and consequently to the venous circulation, caused by the epileptic struggle. When death has not been immediately consequent upon a fit, the appearances indicate rather that the brain hasnot been supplied with its usual amount of blood, and that whatever congestion may exist is found in the veins. Those bloody points on the surface of the centrum ovale which are so often referred to by authors as indicative of a state of congestion are mostly the mouths of veins divided in slicing the hemispheres.

The opaque arachnoids, the enlarged Pachionian bodies, the adherent dura mater sometimes partially ossified, are often found where there has been no epilepsy, and are rather the signs of the altered nutrition brought on by any cause which creates frequent disturbance of the actions of the brain, than the causes of that disturbance. These morbid appearances are constant, but the diseased actions are periodical: it is therefore highly improbable that the lesions above described would develope the phenomena of the epileptic fit.

The brain itself also suffers in its nutrition; it diminishes in size, the convolutions become small, the sulci between them large: the subarachnoid fluid, which always, in point of quantity, bears an inverse proportion to the bulk of the brain, is increased in amount to a greater or less degree.

Whether tumours, the remains of old apoplectic cysts, spicula of bone growing from the interior of the cranium, indurations of portions of the brain, or the so-called hypertrophy of the brain, can give rise to that which has been called *centric epilepsy*, I must reserve for further discussion when I come to inquire into the pathology of this disease.

There are conditions remarkably resembling epilepsy, and not to be distinguished from it as regards the actual phenomena of the fit, but which occur under such constant circumstances that the paroxysm evidently is related to them as effect to cause. I allude to the convulsions of children—the convulsions induced by the introduction of some poison into the system, or the retention of some material in it which ought to be excreted as soon as formed as urea (the *epilepsia* or *eclampsia toxica* of some authors,) the convulsions of puerperal women (eclampsia parturientium.)

The ordinary convulsions of children resemble closely the epileptic paroxysm : in many instances, however, there is a great deal of tetanic convulsion combined with the epileptic convulsion. The unconsciousness of epilepsy is always present in the convulsions of children, and the torpor before and after the fit is rarely absent. Signs of the coming struggle are afforded in restlessness, peevishness, diminished intelligence, a heavy and torpid, but not a sleeping state.

Convulsions do not, in general, attack robust and healthy children, but those who are weakly and ill-nourished; not those who are furnished with a good supply of healthy blood, but those whose blood is poor in quality, and often deficient in quantity; children that are improperly or insufficiently fed; or in whom various resources of irritation exist—such as dentition, irregular secretions, &c. And it may be remarked that these sources of irritation favour the development of convulsions more by the disturbance which they create in general nutrition, in the state of the blood, and in the nutrition of the brain, than by any direct influence upon that organ through the nerves.

Of 28,378 deaths of children from infancy to 15 from all causes in London and its environs, in 1848, those from convulsions numbered 2047, or nearly nine per cent. The children in general die from exhaustion, worn out by the repetition of the fits; and, in the vast proportion of cases, anatomy discloses nothing to explain why convulsions should have existed before death more than other morbid phenomena. With proper care and attention to the child, convulsions have not necessarily a fatal tendency—no more than epilepsy; for, judging from the immense number of children who are attacked, the proportion of deaths to recoveries must be small; but on this point we have no accurate statistics.

Let me remark here, that such morbid appearances as are met with most commonly in the heads of children dead of convulsions, are attributable to the state of general disturbed nutrition of the nervous centres, as in epilepsy, and cannot be regarded as the *cause* of the convulsive paroxysm. The appearances to which I allude are increased sub-arachnoid fluid, or intra-ventricular fluid : they never exist together, as the one may be regarded as antagonistic of the other :—for the most part a pale state of brain, especially of the vesicular matter, with numerous bloody points, formed by the orifices of veins cut in slicing the brain. Now these are appearances constantly met with in the children who have died of other maladies, but in whom no convulsions had been present. Indeed, I think that the position will not be gainsaid, that the pathological state which favours the development of convulsions does not, any more than that of epilepsy, leave any signs which even the most experienced anatomist would recognise.

There can be no doubt that a large number of the cases of convulsions in children from infancy to fifteen years of age, are referable to the introduction into the blood, or the retention in it, of some new material, and therefore may be classed with the convulsions to the clinical history of which I am now about to refer.

So excitable is the nervous system of children, that the development of a fever, especially if caused by the introduction of a poison, is very apt to be ushered in by convulsions, which sometimes prove fatal, and certainly will be more likely to prove fatal if the treatment be conducted with the idea of suppressing the present evil, neglecting to look to what the child has to undergo after the convulsions have ceased. All practical men, are familiar with convulsions in connexion with the early development of small-pox, measles, and especially of scarlet fever.

An artificial epilepsy may be produced by the administration of certain poisons; as the œnanthe crocata, conium, and prussic acid. In poisoning by this latter substance, the epileptic convulsions are frequently complicated to a very great extent with those of the tetanic kind.

These facts prepare us for the doctrine that the retention of certain important excretions in the blood, which their proper organs are incapable of eliminating, favours the development of a state exactly resembling epilepsy in the phenomena of the convulsive fits. When the liver or kidney are in such a state that the elements of the bile, or those of the urine, are not separated in their normal quantity, the patient is very apt to have several convulsive fits, which often terminate his existence. Renal disease is a much more fruitful source of convulsions than hepatic, and the form of disease in which they are most apt to occur is in that small contracted kidney which by some is regarded as a stage of Bright's disease, but which, in reality, is a special morbid state of kidney, a chronic nephritis, frequently produced by gout, and therefore forming the finale of many a gouty patient's career, but often resulting from other causes. In this state of kidney, the gland has shrunk chiefly at the expense of the cortical substance; the growth of epithelium (the immediate agent in the separation of organic products) is greatly impaired, many of the renal tubes are stripped of it, and no development of epithelium at all takes place in them. Hence, while in many of these cases water is freely eliminated, and even a diuresis takes place of an urine pale, and of low specific gravity, the organic products, urea and uric acid, accumulate in the blood, and act, especially the former, as a poison to the nervous system. Any state of kidney, however, if it be unfavourable to due elimination, may give rise to these symptoms; and accordingly I have seen them in that acute affection of the kidneys which is associated with inflammatory dropsy, and with dropsy after scarlet fever, to which my friend Dr. Geo. Johnson, has given the appropriate name, *Desquamative nephritis;* and also in fatty disease of the kidney, where the accumulation of fat has taken place to such a degree as greatly to congest the Malpighian bodies, and to interfere seriously with elimination.

Among the first, if not the first, to announce the important fact, that imperfect action of the kidneys may induce convulsions with fatal tendency, is Dr. Wilson, of St. George's Hospital, who communicated his views in a valuable paper read to this College in 1833. Dr. Bright and Dr. Addison have also contributed largely to our knowledge of this important subject. The latter distinguished physician has published a valuable practical paper on the affections of the brain which are associated with renal disease in an early volume of Guy's Hospital Reports.

I shall conclude by referring to another, and a very formidable form of convulsions, which, as occurring at a period when the patient stands much in need of mental composure, as well as of physical strength, often occasion serious consequences to her, and great embarrassment to the practitioner,—I allude to the form of convulsions commonly called puerperal.

These convulsions are truly epileptic: the paroxysm, excepting as regards the concomitant circumstances, is not to be distinguished from that of epilepsy. There are the insensibility, the foaming at the mouth, often the bitten tongue, the convulsive actions, and the torpor after the subsidence of the fit. These convulsions are sometimes accompanied by a maniacal state, either before or after the fit, as in ordinary epilepsy.

As far as I can collect from the records of the experience of others (for on this subject I must confess that I have no experience myself,) there seem to be three classes of cases in which convulsions form prominent symptoms.

The first class consists of women pregnant for the first time, previously in good health, or, at least, with whom no sign of deranged health has been detected; or, in the words of a high obstetrical authority, Dr. Collins, "strong plethoric young women, with their first children, more especially in such as are of a coarse make, with short thick necks."

The second class consists of women, of greatly impaired health, who may have suffered recently from hæmorrhage.

And in the third class we may place women who suffer from disease of the kidney as manifested by an albuminous state of the urine.

A few cases likewise seem to result from the sudden development of apoplexy during parturition; one or more vessels give way, and the convulsive paroxysm is induced by the laceration of the brain's substance, caused by the rush of blood into it.

And it must be borne in mind, that some of the patients may have been previously epileptic, and the occurrence of a fit near to, or during the period of parturition, may be merely a coincidence.

Such cases as these, therefore, and those of the apoplectic kind, ought not to be placed in the same category with *puerperal* convulsions.

My friend Dr. Murphy, Professor of Midwifery in University College, in some very valuable lectures lately published by him in the MEDICAL GAZETTE, makes a distinction between *sthenic* and *asthenic* convulsions, which is obviously most important in a practical point of view.

Puerperal convulsions occur before, during, or subsequent to parturition; sometimes they will begin before labour commences, come again during labour, and finally recur after parturition. Of 200 cases collected by Dr. Murphy from various sources, forty-six occurred before labour, twenty-five after labour, and ninety during labour; respecting the rest no precise information could be obtained. Enough, however, is known to indicate that the change in the system preparatory to and during labour has most to do with the convulsive paroxysm.

The statistics of these convulsions show that they must be considered, on the whole, as of a fatal tendency, for of 192 cases 48 died; but it does not seem probable that in these cases the patient died solely from the convulsions. The results denote that the mode of delivery had something at least to do with the fatal issue of the case, as the deaths when turning took place were one in two; whilst those when the labour was natural, were one in four and a half.

Of the post-mortem appearances nothing more is to be said than what I have already stated respecting the other convulsive diseases—namely, that the brain presents an essentially normal appearance. If the patient die in the struggle, the brain is much congested,—otherwise the amount of congestion is not excessive; and, in some of the cases, the brain is in an anæmic condition.

Are the muscles or the nerves primarily affected in convulsive diseases? Certain postulates respecting the Nervous system. Pathology of Chorea—proofs that the nervous system is primarily affected in it—the brain the seat of morbid action—influence of sleep—nature of the morbid process—a state of enfeebled and depraved nutrition. Chorea a humoral disease. Conclusions respecting its pathology. Treatment of Chorea. Pathology of Tetanic convulsive diseases—particular states of the blood favour the development of Tetanus. Pathology of Trismus nascentium and of Laryngismus. Dr. M. Hall's views. Treatment of Tetanus—use of cold, and of chloroform. Treatment of Trismus, and of Laryngismus.

HAVING in my first lecture briefly laid before you the prominent facts of the clinical history of the principal convulsive diseases with which we are familiar in this country. I shall now proceed to inquire whether, by the aid of physiology in conjunction with our knowledge of the clinical phenomena, we can form any reasonable view of the intimate nature of the pathology of these diseases.

It must be borne in mind that a disturbed state of the muscular system, although a prominent symptom of these maladies, and most commonly *the* prominent symptom, is nevertheless in many of them, accompanied with other sings which cannot be referred to the muscular system,—such as disturbed sensations, weakness of mind, delirium or mania, loss of consciousness, coma; but that in others, such as the tetanic convulsions, while the obvious phenomena are confined to the muscular system alone, the convulsions occur with a harmony and symmetry which denote, at least, that the common bond of union of the muscular system, that upon which depends the association of the movements of its various portions—namely, the nervous system—must be in some way or other involved in the disease. Why in Tetanus are the muscles of both sides of the body equally affected? Why in Laryngismus is the muscular convulsion limited in many instances to the laryngeal muscles extending in some to those of the neck and back? Why in epilepsy and chorea have you an affection not only limited to certain muscles, but exhibiting, as regards the character of the convulsion, essentially different features from each other, as well as from those of Tetanus?

It thus becomes a preliminary point in our investigation to determine whether in these various classes of disease the primary and essential seat of morbid action is in the muscular or in the nervous systems,—whether the morbid phenomena of the muscular system be dependent on certain disturbances of the nervous system,—or whether the muscular convulsions are primary, and the disturbed state of the nervous system consecutive and dependent on them,—or whether, in fine, the two systems are affected by one common cause, creating simultaneously disturbances in each, which predominate sometimes in one, sometimes in the other.

And let me here remark, that although we are much more accustomed to see the muscular system affected by changes originating in the nervous system, it is by no means unreasonable, nor inconsistent with fact, to affirm that changes originating in the muscular system may affect the nervous system.

Muscle and nerve generate each its proper force; and experiment teaches us that, while the nervous force ordinarily is the excitant of the muscular force, the latter, may excite the former in a similar way. This important point in physiology was first demonstrated by my distinguished friend Matteucci, of Pisa, whose researches on electro-physiology have placed him in the highest rank of natural philosophers.

Matteucci's experiments show that a muscle during its contraction evolves a force which acts upon a nerve brought into contact with it just as a galvanic current would do, causing the muscles which that nerve supplies to contract instantly. Now, if the muscles of a limb be thrown from some cause into powerful contraction, it is not unreasonable to suppose that the muscular force thus evolved may excite a corresponding evolution of nervous force, which in its turn may create a fresh evolution of muscular force, and thus by successive reactions, great disturbance of both the muscular and the nervous system may be kept up until both forces shall become weakened or exhausted.

In the present state of science we cannot fix on any cause not resident in the nervous system, which would excite extensively active movements of the muscular system *before* the nervous system, —such, for instance, as would occur in an epileptic convulsion. The only way in which such excitation of the muscular system could be produced, would be through the blood. Now a stimulus operating through the blood directly upon the muscles would be very unlikely to produce active contractions alternating with relaxations, such as occur in epileptic convulsions; on the contrary, it would give rise to permanent or tetanic contractions. The cramps with which the muscles of a limb are affected just prior to gout fixing itself in the joints, might be taken as an example of such a contraction induced in muscle by a morbid excitant conveyed to it by the blood; but even these, although often severe and extremely painful, are very partial. Yet I confess that this explanation of a phenomenon so simple as that of cramp is rather far-fetched; and this becomes at once apparent, when we reflect that a stimulus operating upon a nerve is a much more effective excitant than one operating directly upon a muscle. Take, for example, the best stimulus of muscular contractions, the galvanic force,—the contractions excited by passing a galvanic current through the twentieth part of an inch of the main nerve of a limb are much more powerful than those developed by the direct application of the galvanic power to the muscles themselves.

The argument, then, may be thus briefly stated: —We know by experiment that a cause operating upon a very small portion of the nervous system, may produce considerable muscular disturbance, not of one, but of several muscles; but that the same cause, acting on the muscular system directly, is much less effective, nor does such a stimulus excite *several* muscles by acting only upon one.

Is it not, then, going too far for the explanation of such a phenomenon as *muscular cramp*, to pass by the nerve, and to limit the influence of the cause to the muscle itself?

Is not this argument alone sufficient to direct us to search first in the nervous system for the immediate exciting cause of the muscular convulsions? Nor is there any reason why both systems should not be influenced by the same excitant, which, even though it were more especially accumulated upon the muscular system, would, in all probability, act primarily and most effectively on the nerves, and *through them* on the muscles, which, from their already excited state, would respond the more readily to this stimulus.

This is probably the case in poisoning by strychnine, one of those energetic substances which, if introduced into the blood in only a very minute quantity, seems to multiply itself[*]: thus to become diffused with extraordinary rapidity through the blood, affecting the two great tissues which are mainly concerned in the manifestation of the vital forces,—muscle and nerve.—but evincing a greater affinity for the latter than the former, and therefore acting with greatest energy upon it.

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[*] Or it is not unlikely that strychnine, prussic acid, and certain other substances remarkable for the *rapidity* as well as the energy of their action, may immediately on their introduction into the blood assume the gaseous form which is highly favourable to rapid diffusion.

I have felt it necessary to deal with this point thus early in our discussion of the pathology of convulsive diseases, in order that we might, by the elimination of a question which more or less encumbered the problem proposed, attend exclusively to inquiring into the nature and situation of the changes in the nervous system which give rise to the clinical phenomena of the convulsive diseases already referred to, of which the convulsed state of the muscles is only one.

I do not pretend to have exhausted this question, nor to have answered all the arguments stated with great perspicuity and ability by a distinguished Fellow of this College, Dr. J. A. Wilson, of St. George's Hospital. All that I have said goes only to show that the advocates of the muscular doctrine are so far unphilosophical in their mode of procedure, as they neglect the more simple and obvious explanation of the phenomena, and adopt a more complicated and obscure method.

In considering the share which the nervous system takes in the development of the clinical phenomena of convulsive affections, I must ask your assent to certain propositions respecting the mode of action of the nervous system in health, which the present state of knowledge warrants us in assuming to be proved.

1. That the nervous system, accumulated in masses, and spreading by its nerves throughout the body, mingling with the proximate elements of the various tissues, consists chiefly of a proximate element, of complex composition—namely, albumen, in combination with phosphorus and certain fatty substances, all well suited to the maintenance of constant and lively chemical action.

2. That this material is developed in two forms, —the vesicular or grey nervous matter, the fibrous or white,—and that the combination of these two different kinds of nervous matter, differing probably both in chemical composition, and in the form of their elementary parts, but more strikingly different in the one than in the other, takes place in the masses called nervous centres.

3. That at the points of junction or of intermingling of these two forms of nervous matter, blood is very freely supplied—very much more freely than where the fibrous matter exists alone. At these points there is generated constantly and unceasingly a force, which in its nature resembles very closely the galvanic force, or current electricity, as developed in the galvanic battery, or the magneto electric machine. Adopting the language of the illustrious Faraday, which expresses with clearness and precision the fundamental phenomena of the electric force, we may call the nervous power a polar force, generated in the centres, and propagated by the rapid polarisation of the neighbouring particles in various directions. The mode of generation of this force, the velocity with which it is transmitted to distant parts of the body, the beautiful provisions adopted for its insulation, have long attracted the notice of physiologists, and have led many to adopt the notion of its identity with electricity. But there are ample grounds for the opinion, that, although nearly allied to electricity, it differs from, and is probably a higher relation of force than that power.

4. The provision made for the generation of this force has an interesting relation to the conditions whereby the galvanic current is generated in the battery. Two dissimilar forms of nervous matter, both bedewed by the same blood, represent the zinc and copper, with the intervening electrolyte of the battery; and as the activity of the battery, and the energy of the galvanic force, depend on the amount of chemical action between the fluid, which is interposed between the metals and one of them, so the activity of the nutrient or chemical changes in the nervous centres determines the degree of development and vigour of the nervous force. And as in the galvanic battery we look to the nature of the metals as well as to that of the interposed fluid, to enable us to judge of the probable quantity and quality of the force generated; so, in the nervous battery, if I may so speak, we must look to the nature of the nervous matter of both kinds, and to the quantity and quality of the blood, to determine the amount and energy of the nervous force developed. Hence we may fairly assume that while the development of the nervous force is much influenced primarily by the nature of the nervous matter, it likewise is greatly dependent on the quantity, but more especially on the *quality* of the blood.

5. That the brain and spinal cord (and I beg to state that I use these terms to signify respectively the intra-cranial and intra-spinal nervous mass,) as the great centres of the nervous system —the great nervous battery of the body—show distinctly a division into two portions: one in which nerves are implanted; the other which has no immediate connection with nerves, and communicates with them only through the medium of the former part. Thus, in the brain, the hemispheres, the corpora striata, the optic thalamus, the tubercula quadrigemina, and the large mass of vesicular matter connected with them and the cerebellum, have no immediate connection with nerves—no nerve is implanted in any one of these centres. The functions of these centres are all of a mental nature,—either the development of intellectual change, or the exercise of volition, or perception, or emotion, or the balancing and coordinating of movements,—and they exercise a control over the various segments of that portion of the cerebro-spinal centre in which nerves are implanted through commissural fibres which pass from them to the various segments of that centre. That part of the cerebro-spinal axis in which nerves are implanted,—which was fully recognised by the distinguised Prochaska, and by him designated the *sensorium commune*—this part is in

itself incapable of originating any nervous action, except in virtue of some physical change in it: it cannot develope any mental action except in obedience to a stimulus from some of those centres already mentioned as belonging to the encephalon. This part extends from the upper part of the crura cerebri to the extremity of the spinal cord, and all its actions are physical, unless when excited and guided by any of the encephalic centres. It is the centre of all those reflex actions which take place through the spinal or encephalic nerves. This part corresponds to the true spinal cord of Dr. Marshall Hall, who, however, recognises in it two sets of fibres—one which does not pass beyond it, and another which extends from the various segments up into the brain, and which, according to this author, would establish a direct communication between the brain and the nerves. To this latter doctrine, however, there are many and fatal objections.

Having stated these postulates, I shall now proceed to inquire how the phenomena of several forms of convulsive diseases may be explained.

In the choreic affections it may well be inquired, first, whether the parts affected primarily are the nervous or the muscular system.

To this I answer at once, undoubtedly the nervous system; but I hope to show that in all these cases the muscular system participates in a depraved nutrition, which renders it more prone to sympathise with the irregular motions of the nervous system.

That the nervous system is primarily affected in chorea, appears to me clearly established, 1st, by the fact that the most common exciting cause of chorea is *fright*, or strong mental emotion. Thus in one of my cases, the patient, a girl of 19 years of age, was rudely accosted and laid hold of in the street by a person under the garb of a gentleman, and she became greatly alarmed, and escaped to the house of a relation. Next morning the symptoms of chorea showed themselves. Fright would act upon the nerves,—not upon the muscles. Grief also will induce chorea. A little girl in King's College Hospital, a veritable "Tilly Slowboy," experienced great grief at the loss of a child to whose care she was devoted. A few days afterwards chorea showed itself.

These mental causes do not act primarily upon the muscles, but upon the nervous centres and the nerves; and so frequently do mental causes give rise to chorea, that Rufz, in investigating 18 cases, traced the origin of 11 of them to fright.

2. In chorea, the nervous system is obviously peculiarly excitable. Choreic patients are much more agitated in the presence of others, than if left to themselves. Of this we have abundant exemplification in hospital practice. When the physician approaches the bed of a patient with chorea, accompanied by a crowd of students, the movements become greatly augmented, and continue so until the cause of excitement has been removed.

This view obtains further confirmation from the fact that we can explain the various phenomena of chorea much more distinctly by referring them to a primary morbid disturbance of the nervous system.

Admitting, then, that there is good ground for the belief that the nervous system is primarily affected in chorea, what portion of that system can we assign as the more special seat of the disturbed action? Is it in the spinal cord, or in the brain?—in that part in which the nerves are implanted, or in that which does not receive nerves?

All evidence tends to show that the part of the nervous system more especially affected in chorea is the *brain*. The hemiplegic character of partial chorea denotes that the disease is of cerebral origin; that the morbid process is most active somewhere above the decussation of the anterior pyramids. Were the spinal cord the seat of disease, you would find commonly that the disorder of movement affected both sides of the body.

Again, its frequent origin from a mental cause points to the brain as its seat. It seems in the highest degree probable that emotions of the mind affect that part of the brain which is most nearly connected with the points of implantation of the auditory and optic nerves—the channels though which emotional excitement is so frequently produced. This part was long ago pointed out by our celebrated Willis as being the corpora quadrigemina, and the large mass of nervous matter which constitutes the greatest part of the mesocephale, a centre which forms the common bond of union between the hemispheres of the brain above, the medulla oblongata below, and the cerebellum behind.

An affection of this part of the brain may, from its extensive connections, produce all the phenomena of chorea, either partial or general: partial, if the morbid action be on one side, as is so often the case in cerebral affections, when the muscular disturbance will be on the opposite side; general, when the affection is on both sides; and in the cases of extensive and acute chorea, the parts involved would not be limited to the centre of emotion, but would extend to the cerebellum, giving rise to the disturbance of the locomotive and co-ordinating powers; and, on the other hand, it would involve the corpora striata and optic thalami, and through them the hemispheres impairing voluntary power and sensibility, and contributing to that imbecility which frequently accompanies chorea of long duration.

The readiness with which sleep controls the choreic convulsions may be adduced as a further indication that this disease has its seat in the brain: sound sleep is undoubtedly a peculiar affection of the brain,—a state in which the particles of that organ seem to assume a condition of quiescence, which contracts remarkably with that unceasing, ever active change, of which it, more than any other part of the body, is the seat. This state, whatever it be, is incompatible with that which gives rise to the choreic convulsions; and hence the moment that sleep steals over the patient, and overwhelms his senses, the movements of the limbs, however active, cease, but return immediately the state of sleep has withdrawn.

I would remark here that this fact of the influence of sleep in controlling the movements of chorea, tells strongly not only against the view which localizes the morbid process of chorea in the spinal cord, but also against the doctrine which affirms the existence of a certain antagonism between the spinal cord and the brain. Were the spinal cord the seat of chorea, and did such an antagonism as I have referred to exist, the state of sleep would be the signal for the immediate development of increased and more active movements, and waking would rather tend to control these movements by the renewal of the activity of the brain.

And now we may inquire, what is the nature of the morbid process upon which the development of chorea depends?

With reference to this inquiry, we have the negative evidence of morbid anatomy that the morbid process in the brain is not such as to produce lesions recognisable by our means of observation; and we have the positive evidence of clinical observation that the disturbance which it produces easily admits of repair by natural means, or may be completely controlled by sleep.

If, with these facts, we consider the nature of the movements themselves, which are precisely those of an asthenic state, combined perhaps with some irritation, we get some further insight into the choreic morbid process. The movements are not unlike those which we observe under other circumstances of great debility, and when general nutrition is impaired,—the subsultus of typhus—the paralytic shaking of old age—the tremblings of the habitual drunkard. In all these cases the development of the nervous force is materially impaired—the material of the nervous battery is nearly exhausted—the exciting fluid is weakened; and hence you have a feeble nervous force irregularly developed.

And the general history of the patients who suffer from chorea abundantly confirms the view that the nutrition of the brain, and, indeed, of the whole nervous system, must be impaired. They are ill-nourished, weakly persons, often badly clad, with a poor and pale blood, more or less infected with the matter of scrofula, or of rheumatism, or perhaps with some morbid matter peculiar to chorea itself, or generated in the system by a depraved primary assimilation.

And, looking to the state of the muscles themselves, we cannot pronounce them to be in a healthy state. In choreic patients the whole muscular system is in a more or less soft and flabby condition; and, if you compress the affected muscles, you do not find the firm resistance of a muscle contracting with its normal vigour, but rather that which indicates that the muscle acts with feebleness, and is incapable of perfectly developing the muscular force.

But some one will ask, if the phenomena of chorea are in any way dependent on a depraved and poisoned state of blood, how comes it that they are so frequently localized? This localization of chorea to one side of the body, or even to one limb, or to the muscles of the tongue, is by no means inconsistent with what we know of the laws of action of morbid poisons. Witness the fixation of the syphilitic poison to the skin and periosteum,—of the scarlet fever poison to the tonsils and lymphatic glands—of measles to the lungs,—of cholera to the gastro-intestinal mucous membranes,—and look at the morbid localization of the matter of gout, as well as of that of rheumatism, even in cases where the blood is largely charged with it. It in no degree militates against the humoral view of the pathology of gout, that the morbid matter selects the great toe as its favourite locality; nor against a similar view of the pathology of rheumatism, that its morbid poison is prone to attack the heart.

I have now, I hope, said enough to justify me in drawing the following conclusions respecting the pathology of chorea:—

1. That chorea is a disease occurring at a time when the nutrition of the brain is passing as it were through a state of transition, from that of infancy or very early childhood, to that of the adult period, when that organ is peculiarly prone to suffer from mental shock, or other causes of disturbance of the system, and more especially when the blood is in an unhealthy state, deficient in some of its staminal principles, or containing some morbid element.

2. That the part of the brain mainly affected is the centre of emotion, but that the extent to which it suffers is sometimes limited to one side of that centre, sometimes to both, again extending to the cerebellum or to the corpora striata, or optic thalami.

3. That the nature of the cerebral affection is one of weakened nutrition, with some degree of irritation; as poor blood, rendered perhaps impure by the presence of the matter of scrofula, or of rheumatism, or by some morbid matter peculiar to chorea, excites the nervous battery, and causes it to generate its force feebly and irregularly. The centre of emotion thus feebly excited and irritated by the presence of an abnormal ingredient in the blood, extends its feeble and irregular polarity to that portion of the centre of implantation of the nerves, which, as the polar state of the conductors of the battery is regulated by that of the battery itself, exhibit the same enfeebled polarity as the centre in which they are implanted.

Lastly. The disease is essentially one of depraved general nutrition, which must be set right before the symptoms which arise out of the local disturbances can be removed; and this is the point of practical interest which must regulate our treatment of the disease.

These conclusions respecting the pathology of chorea receive confirmation from the facts to which I have already alluded—namely, that choreic movements occur in certain gouty states, and also in white softening of the brain, arising from diseased arteries. Under both these conditions the nutrition of the brain, as well as that of the nerves and muscles, must be depraved and weakened; depraved, especially in the former instance, by the matter or poison of gout; weakened in both.

And the treatment which is now by general concurrence, and with an unanimity which scarcely exists as regards the treatment of any other disease, pursued in cases of chorea goes further to confirm these views. No one now-a-days thinks of adopting for this malady any other treatment but one eliminatory and corrective of the various secretions, by the use of purgatives, and at the same time tonic and bracing to the nervous system, by the free application of cold water to the surface, and also tending to improve the quality of the blood, by a nourishing diet, by chalybeates, quinine, and various metallic tonics. And if, notwithstanding the use of these strengthening remedies, the nerves of the limbs still exhibit debility or paralysis, the application of the stimulus of galvanism rarely fails to excite and promote their nutrient activity.

This plan of the treatment of chorea has not been adopted with such general consent without the previous trial of other plans. Sydenham, as is well known, treated chorea by bleeding; but he appears to have had very little experience of the disease. The authority of Sydenham appears to have led his successors to continue this mode of treatment; and even Cullen had not wholly abandoned it,—so hard is it to give up a practice sanctioned by high names. Heberden, indeed, had arrived at a different conclusion. This eminently practical physician says—"Bleeding and purging, and violent medicines, can hardly be judged proper for a distemper attended with no inflammation nor heat, and particularly incident to a very tender age, and to the weaker sex; and which, if left entirely to itself, would, I believe, generally cease spontaneously, and leave the constitution unhurt. This reasoning, he adds, appears to me to have been justified by fact and experience. When they have been used, I never saw any good effects from them, and rather suspect that they have done mischief."

In the acute form of general chorea, it is very important that the practitioner should not suffer himself to be led by the urgency of the symptoms, and the violence of the movements, into the adoption of any depleting or depressing treatment under the notion of stopping the movements by reducing the powers of the patient. The more you weaken the patient under these circumstances, the more incessant and urgent will the movements become. Great diligence, however, is needed in administering support and stimulants with the utmost freedom, and in throwing in large quantities of quinine and iron, or other tonics, care having been previously taken to unload the bowels by clyster or by purgatives. Great benefit also arises from the free and frequent use of the cold bath; from what I have myself seen, I would say that the greatest immediate benefit arising from the use of the cold bath is from its exciting a disposition to sleep much more decidedly than opiates, which do not generally act favourably in any of the forms of chorea.

The next subject to which I shall beg your attention, is the Pathology of those convulsive affections, of which Tetanus is the type.

We have very satisfactory means of demonstrating that in tetanus the phenomena are dependent on a peculiar state of the nervous system, as it is so easy to produce all the phenomena by the application of stimulants to the spinal cord.

Thus by successive shocks from the magneto-electric machine, transmitted through the spinal cord, the state of tetanus may be produced, and it will remain for some time after the current has ceased to be transmitted. If similar shocks are passed through the chief nerve of a limb, a similar tetanic condition of the muscles immediately follows, but it *ceases instantly* the transmission of the current is discontinued.

So, also, the administration of a few grains of strychnia will produce tetanus; and in cold-blooded animals, as in the frog, opium will also develope tetanus, but in a less degree than strychnine.

The phenomena developed by the transmission of a rapid series of galvanic shocks through the spinal cord, are not to be produced by stimulating any other nervous centre in the same way. You may apply the galvanic power to any part of the brain, only keeping clear of the centre of implantation of the nerves, and you will fail to produce any tetanic phenomena whatever.

The most striking proofs may be obtained to show that the spinal cord is the seat of excitation in poisoning by strychnine. If you give an animal strychnine so as to produce tetanus, you may pith him, and yet the tetanic state will continue. Or in a cold-blooded animal (in which the nutrient actions, although more feeble, are more enduring,) if you pith the animal first, and then administer strychnine, the tetanic state will nevertheless come on, and last for a considerable time; but the moment you destroy or remove the spinal cord, that instant all rigidity of muscles disappears, and the stiffened limbs become immediately relaxed.

And it is very remarkable that while, by the introduction of a minute quantity of a particular alkaloid, or, in cold-blooded animals, of opium into the blood, you can produce the state of tetanus with great facility,—it is very difficult, if not impossible, to obtain tetanic symptoms by wounds inflicted for that purpose, even in the most highly sensitive parts; a fact of much interest in reference to the frequent endemic occurrence of Tetanus, and of other convulsive affections of a tetanic kind, and tending to show that a particular state of the blood is favourable to the development of Tetanus.

The symptoms of Tetanus as it affects man and some of the lower animals, the horse for example, so precisely resemble those of the disease as it is artificially produced, that it is impossible to resist the conclusion, that not only the part of the nervous system affected, but also the nature of the affection, must be the same in both (if I may use the distinction,) the artificial and the natural disease.

The part of the nervous system affected is clearly the spinal cord, and at least the greater part of its intracranial continuation, the medulla oblongata; and it seems highly probable that the anterior horns of the gray matter of the spinal cord and the centres of implantation of the encephalic nerves, are more particularly affected.

And the nature of the morbid process is not one of inflammation, nor does it arise out of any alteration in the *quantity* of blood flowing through the cord; it is not due to any congestive state, nor to any anæmic state, it consists of an exaltation in the special property of the nervous matter; an exaltation in the generating power of that portion of the great nervous battery in which the chief cerebro-spinal nerves are implanted; in short, it is a state of exalted polarity of that centre, produced either by the extension of a similar polar state, developed at the distal extremity of some nerve, or by some modification of the nutrition of the cord caused by the development in the blood of a material having similar properties to that of the alkaloid, strychnia.

Or, in the language of physics, the exalted polar state of the battery is due either to an altered condition of its generating and conducting plates, or to an increased activity of the fluid by which they are excited—perhaps, indeed, to both.

Such, then, is the pathology of Tetanus. A man receives a wound—this wound occasions an irritated, a polar state of certain nerves—and this polar condition is communicated by a process of induction to the whole spinal cord, which, by some modification of the nutrition of the cord due to some altered state of blood, assumes that state the more readily, and retains it the longer.

Unless we admit that the blood has some share in the production of the phenomena, we shall fail in explaining the occurrence of Tetanus without injury, or the tetanus of infants, but more especially we shall fail in explaining its greater proneness to be developed in certain localities, or in certain states of atmosphere and climate.

And surely the fact to which I have already adverted, of the much greater facility of inducing this polar state of the spinal cord by the introduction of certain substances into the blood even in almost infinitesimal quantity, than by mere mechanical irritation of the nerves, strongly points to and favours the conclusion, that a change in the natural condition of the blood may greatly promote, if not wholly cause, the development of the tetanic state; and this change in the blood may be caused either by the introduction into it of some new material from without, or by the generation within it of some new matter possessing highly poisonous qualities.

All that I have said respecting the clinical history of the Trismus nascentium, and of Laryngismus stridulus, shows that these diseases must be precisely similar to tetanus in the essential points of their pathology.

The Trismus, indeed, is only a very acute form of Tetanus, and its endemic character, and its proneness to occur under circumstances unfavourable to free ventilation, and good general nutrition, are highly confirmatory of the view I have ventured to advocate of the probable influence of a morbid state of blood in promoting the polar state of the spinal cord and medulla oblongata.

Laryngismus differs from Tetanus in the fact that the polar state of the nervous centre is less permanent, and that the medulla oblongata is more affected than the spinal cord. In Tetanus, the spinal cord is more affected than the medulla oblongata. The proximity of the medulla oblongata to the centre of emotions, explains the extreme excitability of children suffering from Laryngismus by mental emotions.

In Laryngismus, there is nothing whatever of an inflammatory nature, nor is there anything of a congestive kind: it is most important that practitioners should be well impressed with this fact.

Whatever congestion may arise in the nervous centres is venous, and is caused by the convulsive paroxysms, which impede respiration, and consequently delay the return of the venous blood. It is, then, an effect and not a cause of the convulsive state.

We have in laryngismus only an exalted polarity of the nervous centres, caused either by peripheral irritation, as that of dentition, or by a morbid blood produced by imperfect feeding, artificial nursing, bad air, neglect of cleanliness, or associated with a highly scrofulous diathesis.

These views of the peculiar condition of the spinal cord in Tetanus and the allied affections were, so far as I know, first put forward by Dr. Marshall Hall, to whom science is under great obligation for the introduction of sounder views on many points in the application of physiology to pathology. That distinguished physiologist, with whom I regret to find myself at variance on many points, in an interesting and valuable essay on convulsive affections, makes these remarks:—"Tetanus and Hydrophobia consist in an induced spinal erethismus, the paroxysms consisting of augmented or excited spasm, from external excitants. The infant, under the influence of what I will designate the convulsive tendency, susceptibility, or erethismus, may therefore be compared to the patient attacked by tetanus. The causes are similar—irritated nerve, inducing spinal erethismus, and great susceptibility to excited reflex actions; the effects are analogous—tetanoid affections."

Hitherto the various plans of treatment pursued in Tetanus have received but a small amount of success. I am inclined to attribute their failure partly to the fact that practitioners have not sufficiently kept in view the important point, that death takes place, not by any disorganization of important vital organs, nor by the destruction of processes essential to life, but by the exhaustion consequent on the frequent renewal of the paroxysms of tetanic convulsion,—and partly, also, to this fact, that our treatment has been hitherto so empirical, that no definite plan seems ever carried out with sufficient fixedness of purpose in a sufficiently large number of cases.

The pathology and clinical history of Tetanus point out three objects which the practitioner ought constantly to keep in view in the treatment of it.

1. To support the strength of the patient as much as possible, so as to oppose the exhausting effect of the convulsive paroxysms.

2. To remove all possible sources of irritation or of depravation of the blood, in vitiated secretions, bad diet, impure air.

3. To diminish and reduce the exalted polarity of the nervous centres to their normal condition, and if possible to effect this by means which will not exhaust or reduce the powers of the patient.

Now, the first indication is of primary importance: if the patient can be duly supported, we gain time, and we have abundant proof that the natural powers of the system are often capable of doing the rest without any assistance from art.

To accomplish this object, the practitioner should set himself diligently to devise means of giving nutriment and stimulants in the manner in which they may be most readily assimilated. As a general rule, this may be done best by giving them frequently, and in small quantities; and it is wonderful how much may be taken in this way if they are only administered with care and judgment.

Any process of depletion—by loss of blood, or by evacuants of any kind, carried to a great extent, would be highly objectionable, as being calculated to oppose the object in view.

In addition, then, to the various articles of food best adapted to the assimilating powers of the patient, and also to wine, or other alcoholic stimulants, the practitioner ought not to withhold the liberal use of quinine, ammonia, iron, or other drugs, which experience tells us exercise a tonic power over the system in general,—and he may give them in large doses.

The second point may be best attained by means calculated to promote the various natural secretions, especially those of the bowels, skin, and kidneys. But in administering remedies for these objects, care should be taken not to use those of a violent and irritating nature: drastic purgatives should be avoided; too profuse sweating or diuresis should be guarded against; and the practitioner should bear in mind that the object is to alter and improve, not to pull down.

To obtain the third object—namely, to reduce the polarity of the spinal cord, is at once the most important and most difficult. The various sedative remedies—opium, hydrocyanic acid, belladonna, conium, tobacco—have been fairly tried and failed. Opium is not a sedative to the spinal cord; its use in tetanus may be laid aside excepting in small doses as a sudorific. In cold-blooded animals it exalts the power of the spinal cord, and it is not impossible that in warm-blooded animals it may have a similar tendency: it is, therefore, a remedy of little value in tetanus, save as a sudorific, and in large doses it may be of an injurious tendency.

Neither is hydrocyanic acid a sedative to the spinal cord; on the contrary, it tends to produce epilepsy, and to excite the polar state of the cord by induction from the brain.

Belladonna has a decidedly sedative influence, but it disturbs the action of the brain so much, that it is not a safe or manageable remedy. The same may be said of conium. Tobacco undoubtedly reduces the polar state of the cord, but it produces at the same time a state of fearful depression. It is likewise an unsafe and not a manageable remedy. I have seen more than one patient die, *cured* of Tetanus, under this remedy.

There are two agents which certainly exert a considerable power over the polarity of the spinal cord, which have not yet been tried sufficiently fairly, and which I think fully deserve to be put extensively to the test of experience. These are —cold and chloroform.

Of cold I can speak favourably from my own experience: I have tried it by the application of ice in ox gullets to the spine, taking care to renew them frequently. I have adopted this practice in Tetanus, and in convulsions in which the spinal cord was much involved, and in other more partial states of exalted polarity of the spinal cord, and with a sufficient amount of success to justify me in forming a very favourable opinion of the powers of cold as a depolarizing agent.

In order to give the remedy a fair trial, great vigilence is required on the part of the attendants of the patient to renew the bladders very frequently, otherwise they become elevated to the temperature of the body. This should never be permitted, as it is only by the long-continued application of cold that the spinal cord can be reached by it.

Another point which the practitioner who uses cold in this way must keep in view is, that when the cold fairly reaches the cord, its influence is shown by a marked depression of the action of the heart, which leads to general depression and debility. During the application of the bladders in this way, increased vigilance will be necessary in the administration frequently, and at short intervals, of nutritious and stimulant substances.

Sometimes the depression of the heart's action reaches a point below which it would be unsafe to suffer it to go. Under these circumstances the ice must be removed, and kept off until the heart in some degree recovers itself, when it may be resumed. Thus by removing and reapplying the bladders from time to time, the influence of the cold may be kept up sufficiently long to produce a favourable effect upon the cord without producing such an amount of depression as may operate to the disadvantage of the patient. But to carry out this plan great vigilance, and care, and judgment, will be needed on the part of the practitioner, in order that all precautions may be duly observed, and that the patient may be encouraged to persevere in the use of a remedy which involves some degree of personal discomfort.

Of chloroform, tetanus or tetanoid affections, I have no experience. Two years ago, however

I performed some experiments, by which I satisfied myself that the analogous agent, ether, when introduced into the system by inhalation, exercised a most powerful controlling influence over the polar state of the cord, as induced by strychnine.

In these experiments I found that previous etherization retarded the polarising influence of the strychnine; and that, after poisoning by strychnine, life might be prolonged for a considerable time by the administration of ether.

A guinea-pig was thrown into tetanus by a quarter of a grain of strychnine: immediately the tetanic symptoms showed themselves, he was etherized; the state of tetanus immediately passed off; in a short time, however, it recurred, and was again controlled by ether: and by thus repeatedly etherizing the animal when the tetanic symptoms reappeared, life was prolonged for many hours, whereas another animal of the same size, and poisoned at the same time by the same dose but not etherized, died rapidly.

These experiments illustrated in a very striking manner the antagonistic power which ether (and chloroform, as possessing identical virtues) can exert over the polarity of the cord. The great point which ought to engage the attention of practitioners in the application of these agents to the treatment of such cases as Tetanus, is to know how to avail themselves of its depolarizing power, and at the same time to guard against the injurious effects of its depressing influence. Chloroform weakens the force of the heart,—sometimes diminishing, at other times increasing the frequency of its action. Hence, while administering it in tetanus, we shall find it necessary to use with increased diligence the means calculated to uphold our patient's strength; and we must take care that the sleep of chloroform does not prove to him the sleep of death, by depriving him too long of those supplies which alone can counteract the destructive asthenia.

In the abscence of any experience of the use of chloroform in tetanus, I should advise that a patient be not kept under its influence for any length of time, and that if, after the administration of it, and after its more profound effects have passed away, he should continue to sleep, the sleep should be interrupted at intervals of an hour or of half an hour, according to his strength, in order to administer support. If the patient does not sleep after the administration of the chloroform, and if the effects pass off, then it should be administered a second time, and a third time; after which several hours should elapse before it is again administered, and then it should be given in a similar manner, taking care that it be given not more frequently than at three, or, at most, four different periods in twenty-four hours.

These suggestions, however, are prior to experience: they want the support or the modification which observation only can give, and I should not venture to offer them were it not that it seems to me of great importance that we should not discard an agent so powerful as chloroform, against certain morbid states, without giving it fair play, sifting its merits and demerits, and employing it in various ways, so as, if possible, to secure the benefit of the former, and to guard against the disadvantages of the latter. In some of the cases of tetanus in which I have heard of chloroform being employed, it has seemed to me that the patient was kept too long under it at once,—that its renewal was at too short intervals,—and that sufficient precautions were not taken to counteract its depressing influence.

We have yet much to learn respecting the application of so powerful an agent as chloroform to the relief of nervous affections. But I dare say the time is not far distant when we shall be able to form a more exact judgment of its powers and applicability to these diseases. To those who are interested in this subject, I recommend the perusal of some interesting essays now in course of publication in the MEDICAL GAZETTE, by Dr. Snow.

The rapid course which trismus nascentium generally runs, and the feebleness of the little subjects of it, do not permit us to expect that we shall ever be more successful in the treatment of that fearfully acute tetanus than our predecessors. What we may really hope for is, that as careful attention to cleanliness and ventilation, and the early good management of the infant, has greatly diminished the number of cases of the disease,—so improvements in these respects may yet blot it out entirely from the list of ills to which the newborn infant is exposed.

The views of the pathology of the disease which I have endeavoured to advocate, suggest that the most promising mode of treatment is that by very frequent copious affusion of cold water, especially over the back and along the spine; such precautions being taken as may ensure the speedy restoration of the animal heat, and prevent its undue depression: such as good friction of the skin, quickly enveloping the infant in warm blankets after each affusion, maintaining a uniform temperature of the apartment, which, however, should at the same time be most carefully ventilated. To these should be added good feeding, and such attention to the state of the bowels as will secure the discharge of their contents without any active purging, which might prove an additional cause of exhaustion. Change of air would be most desirable, when it would be possible. But these cases run a course so rapid that it rarely happens that there is time for the adoption of such means.

Judging from the reports of cases as they are from time to time published in the medical journals, I would say that the views of practitioners are becoming pretty well agreed as to the most effective treatment of laryngismus stridulus. The points which should especially engage our attention, are—first, as to the best means of removing all sources of irritation; secondly, as to the most appropriate mode of promoting a healthy and vigorous nutrition; thirdly, the proper measures to adopt for diminishing that extreme excitability of the nervous system which keeps up the frequent repetition of the convulsive paroxysm.

It is very important that all sources of irritation should be removed as early as possible. What we most frequently find to excite irritation, are—accumulations or morbid secretions in the bowels, and the inflamed gums in dentition. The first may be easily removed by the action of purgatives, so regulated as not to impair the strength of the patient, nor themselves to act as irritants. Inflamed gums are likewise easily relieved by free incision with the gum lancet, which it may be necessary to repeat once or twice. But I must remark that the gum lancet must not be used indiscriminately; to many children the mere attempt to open their mouths occasions great disturbance, —nay, a greater disturbance than the inflamed gums which it is sought to relieve,—and it may excite a paroxysm which may prove fatal. Hence I hold that this operation ought not to be performed unless it be rendered absolutely necessary by *a really inflamed and swollen state of gums.* Under such circumstances, the relief to be obtained by the free division of inflamed mucous membrane is frequently so immediate and so great, that we may legitimately encounter the risk which the operation occasions, in order to obtain so great a benefit. But where there is no inflammation of the gums, where it is plain that the teeth are not impeded in their advance by inflamed mucous membrane, no good can be obtained by the incisions.

Still more objectionable must be the practice of frequent or daily division of the gums; by such a procedure you expose the child to a daily repetition of a scene of great excitement, without any corresponding benefit. For what can be gained by such a practice? The teeth are not delayed in piercing the gums in consequence of any mechanical obstacle; their tardy progress is the result of a slow and inactive nutrition: in short, they grow slowly, and therefore are slow in cutting their way through the gum. Is it to be expected that the frequent repetition of the operation of cutting through the gums will hasten the growth of the young teeth? I think not: on the contrary, there appear to me to be some strong grounds for the apprehension that such operations may retard the growth, and injure the nutrition of the young teeth.

There are many cases, however, in which dental irritation does not exist; that is, in which there are no teeth exciting painful inflammation of the gums. In such cases there will not be any need for surgical interference with the mouth. But in these and in all cases the practitioner will have to apply himself diligently to devise the best mode of promoting a healthy and vigorous nutrition. And for this purpose he must attend to the quality of the food, its quantity, the manner in which it is given, the periods of feeding; on one or all of these points he will certainly find something to alter and amend. Either he will find that an infant is being brought up by hand when it ought to be nursed, or it is nursed too often, or with milk of bad quality, or it is fed in some imperfect manner.

Time would fail me, were I to enter upon the large and important subject of the best method of feeding infants. I must content myself with briefly referring to certain precautions which ought always to be taken, in order to insure to the child the full benefit of its food. First, it should be fed *slowly:* this rule, so important in the adult, is not less so in the infant; and the question, in cases where the infant is not nursed, between feeding with the bottle, by suction, or with the spoon, entirely turns upon this—whether, by the one or the other method, it is fed sufficiently slowly. The former mode is the preferable, as coming nearest to the mode of prehension most natural to the infant—that, namely, by suction; it is *objectionable*, as affording to careless nurses too easy opportunity of rapidly feeding the child.

A second point of importance is, that the child should not fast too long, and that too much food should not be given at each meal. Frequent meals carefully adjusted in quantity are undoubtedly best suited to the infantile economy, which is the seat of rapid growth, and therefore needs frequent supplies. Attention to the *rate* at which the food is administered will help in adjusting the quantity: a child fed slowly will take less food than one hastily and rapidly fed.

Lastly, the quality of the food should be determined mainly by the period of infancy, but also by the power of digestion evinced by each individual. Speaking generally, in the earliest periods the food should be simple and uniform: if the infant cannot be nursed by its mother or by a healthy wet-nurse, its food should be as nearly as possible assimilated to human milk. As the infant advances life, farinaceous matters obtained from the flour of wheat, as containing gluten, should be gradually and cautiously added; and after the fourth or fifth month, gelatinous and albuminous matters derived from animal food may be given in small quantities.

But whilst the practitioner is carrying out these reforms in diet, he must not forget that he is urgently called on to diminish the frequency of the paroxysms. For this purpose he must cut off as much as possible all external causes or means of excitement, and he must adopt measures to diminish the excitability of the nervous system.

Let me here remark, that there are few occasions in which the practitioner stands more in need of that support which is so fully derived from confidence in himself and in his principles, than in the treatment of such a malady as laryngismus. The anxiety of parents, always great when a child is in danger, is wound up to its highest pitch when it is afflicted with a malady which threatens every moment to deprive him of life. They therefore naturally look most eagerly for the speedy adoption of the means which will mitigate the severity of the paroxysms, and diminish their frequency. Under these circumstances the practitioner must let it be seen that, while he is fully alive to the imminent danger in which his little patient is placed, he has a sufficient command of resources, and he is guided by certain principles of action, which he will carry out with decision and vigilance.

The plan of dashing cold water in the face, to avert an impending paroxysm, or to shorten an existing one, is generally attended with success, as regards the paroxysm. It is also, I think, useful in shortening the intervals between them, by diminishing the excitability of the cutaneous nerves. This dashing with cold water should be administered liberally and rapidly, notwithstanding the concomitant inconvenience of wetting the child's clothes. In some instances the operation of drying the child and putting on fresh clothes is itself useful. On similar principles, I find it very useful to have the child well sluiced with cold water night and morning, and sometimes even a third time in the day. A large quantity of cold water should be dashed *rapidly* upon the back and shoulders, and along the spine,—a moderate pitcher of water being *at once* emptied upon them. The value of the remedy is greatly enhanced by the suddenness of its application. In this suddenness consists the skill of its administration; and unless this be well done, it had better not be used. For this reason it is expedient that the practitioner should at first superintend its administration himself, and teach the nurse how to apply it.

The cold effusion not only diminishes the excitability of the cutaneous nerves; it likewise improves general vigour, stimulates the circulation of the skin, and consequently increases the action of that great emunctory, and contributes to promote a more healthy state of general nutrition.

If drugs are used, the most valuable (in addition to such purgatives as may be necessary to keep up a moderate action of the bowels) will be found to be those of the tonic and antispasmodic class. I have myself seen most advantage from the use of iron in combination with alkalies, potash, or ammonia. Assafœtida is extolled by some. Sir. H. Marsh commends the old Tinctura fuliginis. The infusion of bark, the liquor cinchonæ of Battley, the tincture of bark, quinine itself (the chief objection to which is its intense bitterness of taste,) will all prove more or less useful.

Depletion by bloodletting, whether general or local, may, I think, be completely discarded from the list of appliances, at the command of the practitioner in the treatment of this malady. In most instances it may do great harm by impoverishing the blood, and increasing the excitability of the nerves, and weakening the patient. I have not met any cases in which it has appeared to be advisable, unless as a means of satisfying the prejudices of parents or others. The disease is clearly not inflammatory; all who have seen it on a large scale agree in this view: and whatever congestion may arise in the nervous centres is the result of the paroxysm, and not their cause. Some may think it advisable to use depletion for the relief of this congestion. Upon this point it is obviously impossible to lay down any general rule. In my own experience I have not met with any instance of congestion of this kind which has not been sufficiently easily relieved by purgatives and attention to diet.

Of all the remedies which are adapted to increase the tone and vigour of the nervous system, none is so potent as the exposure of the child to fresh air, especially to that of a locality different from that in which it had been accustomed to live. There are few who cannot bear testimony to the efficacy of this practice. In principle it should be carried out throughout the whole treatment of the case. The child should be kept if possible in an airy, well-ventilated apartment, of moderate temperature. Everything like what is commonly called "coddling" should be avoided. The child should be lightly *but sufficiently* clad, and be kept free from all such articles of clothing as might in any way impede the superficial venous circulation, or interfere with the free action of the respiratory muscles. If complete change of air cannot be obtained, it is a good plan to take the child out daily in a carriage into the country, to some distance from its usual residence, where, if the weather be not too cold, it may be carried about in the open air.

Many practitioners have a fear of adopting the change of air system, lest the patient should incur the risk of bronchitis. This fear is, within certain limits, well founded. But I think it right to mention here, what I have not seen referred to elsewhere, namely, that one of these patients may have the physical signs of bronchitis without the disease. A spasmodic state of the bronchial muscles frequently coexists with the spasm of the glottis, often precedes it, and remains for a considerable time after it. This is accompanied by a generally diffused *ronchus*, such as would occur in bronchitis. It subsides immediately the general state of spasm subsides. Of these points I have had frequent opportunity of satisfying myself.

Children often fall into what I would call a *laryngismoid* state, *i. e.* a condition in which the tendency to laryngismus is manifest, with great nervous excitability. If the child cough, inspiration is attended with a croupy noise. Crying, or any forced respiratory act, exhibits similar phenomena. But no regular convulsive paroxysm occurs. In these cases great benefit is derived from daily exposure to the air, and from a treatment conducted upon the same plan as for the fully developed malady.

Such, then, are the principles and the plan of treatment of laryngismus. It is but just that I should mention that these views of the pathology and of the treatment of this disease have long been *practically* recognised by men of experience. The late Dr. Cheyne has left a brief but clear description of the disease, published thirty years ago; and I know no more accurate and clear account of the disease than that given by my friend Sir Henry Marsh, in the Dublin Hospital Reports, in 1830, where principles of treatment similar to those I have endeavoured to lay down, are inculcated. Dr. Marshall Hall has also ably illustrated the pathology of the disease, and given some judicious instructions for treating it. Some valuable practical remarks on the treatment of the disease were published by Dr. Roberton, of Manchester. And, lastly, a very able essay upon it has lately been published by Dr. James Reid, of this city, which is interspersed with excellent observations, both pathological and practical.

Theory of Epilepsy.—*Phenomena essential to epilepsy—Epileptiform convulsions dependent on superficial disease of the brain—Case—Points to be explained by an adequate theory of epilepsy—Epilepsy not due to primary irritation of the spinal cord—What part or parts of the brain affected in epilepsy. Not the Medulla oblongata, nor the Corpora Striata and Optic Thalami—Affection of the hemispheric lobes explains the loss of consciousness—Can superficial irritation of these parts of the brain cause convulsions? Periodical action of the brain—Sleep—Dr. M. Hall's theory of sleep—Objections to it—The mesocephale affected in epilepsy—Experiments by the magneto-electric machine on different parts of the cerebro-spinal centre—Clonic convulsions caused by irritation of the meso-cephale—Conclusion as to the parts of the brain concerned in the production of epilepsy—Inquiry into the nature of the cerebral disturbance in epilepsy—Is it inflammation? Congestion? Anæmia? Theory of the disease—Humoral view—Treatment by drugs—by discipline and regimen—Use of chloroform in epilepsy.*

To frame an adequate theory of the pathology of epilepsy, is, I feel, a task of no ordinary difficulty. Although much has been done of late years towards forming exact views of the functions of the several parts of the great cerebro-spinal axis, we are still very uncertain as to the precise influence which each part has on the others,—as well above as below it,—and how far a disturbance of any one may involve the rest in a like disturbance. While such obscurity exists respecting the office of important parts of the nervous system, it is impossible not to approach the subject of the pathology of epilepsy without a feeling of hesitation and mistrust.

The leading and pathognomonic features of true epilepsy are these :—loss of consciousness and sensibility, most frequently accompanied by convulsions of the kind which I have described as epileptic, *i. e.* of movements which consist of alternate relaxations and contractions of muscles rapidly succeeding each other ; these paroxysms occurring at intervals of variable length, with something of periodicity, the patient during the interval recovering himself completely. These phenomena are most frequently ushered in without any warning whatever, so that the patient is suddenly, and on the instant, seized, rendered senseless, more or less violently convulsed, and then awakes more or less suddenly. In many instances all this is done in scarcely as much time as it takes to describe the phenomena ; at other times the fit is of much longer duration.

Now it must be carefully kept in view that the complete epileptic paroxysm is compounded of many phenomena, of which the primary and constant ones are the loss of consciousness, and the disturbances of sensibility which usher in the fit, or remain after it. We never meet with instances of epileptic convulsions affecting the whole system, and recurring periodically, which are not ushered in with loss of consciousness, or accompanied by it. We do, however, frequently meet with instances of the sudden loss of consciousness, lasting for a longer or shorter time, without any muscular disturbance ; and this loss of consciousness is accompanied by a peculiar vacant look, —an aspect entirely devoid of all indication of intelligence,—expressive, indeed, only of the temporary abeyance of the intellectual power, and attended with a dilated condition of the pupils ;—a feature of the epileptic state quite as constant, perhaps, as the loss of sensibility and consciousness, and which is very apt to remain, although in a less degree, after the fit, and throughout the entire period intervening between the fits.

There are, however, certain epileptiform disturbances of motion not accompanied by loss of sensibility, which it may be as well that I should notice here, partly to draw the line of distinction between them and the true epileptic convulsions, and partly because a right appreciation of the nature and character of these pseudo-epileptic movements will assist me in the course of this discussion. These movements occur in paroxysms: they consist of alternate rapid contractions and relaxations, with, however, a great tendency to muscular cramp or rigidity. If, for instance, the arm is affected, the movements will consist of rapid flexions, alternating with extensions, but in the intervals the muscles will feel firm, and more or less rigid. Sometimes, however, the reverse takes place, and a state of paralysis ensues upon a violent convulsive paroxysm. In such cases the convulsion is never general,—always partial, and confined to one side, one arm or one leg, or both, with the side of the face. In many instances the movements are no more than twitchings, and in all, the experienced eye would readily detect the difference between their half tonic, half clonic nature, and the forcible plunging truly clonic character of the proper epileptic convulsion.

Such movements as these accompany superficial irritation of the hemispheres of the brain or of the cerebellum. I have seen them most frequently in children, associated with the so-called tubercular meningitis ; or, more properly, meningitis and encephalitis, excited by the presence of tubercles in the pia mater.

A case of this kind came under my observation some years ago, which afforded a striking instance of these pseudo-epileptic movements, as I would call them. As the case has been made public by Mr. Dunn, the surgeon under whose care the child was, and who kindly afforded me the opportunity of seeing him, I shall refer to his clear and able account of it published in the Medico-Chirurgical Transactions for details, and content myself with mentioning those points which are most applicable to my present purpose.

The boy was two years old, and of strumous habit. He had for some time been failing in health, and shown excessive perverseness of temper. On the 7th of October he awoke, as he was accustomed, between six and seven o'clock in the morning, and while amusing himself with his sister in bed, and attempting to turn over, his left hand suddenly began to take on a jerking or convulsive twitch, which did not extend beyond the wrist. Mr. Dunn saw the patient immediately, and found that these convulsive jerkings formed the only symptom exhibited by the child. He was laughing and talking, quite sensible, and in every other respect seemed perfectly well. These jerkings continued for about twenty minutes, when they subsided, and the child was free from them the whole day. The next morning, the 8th, at nine o'clock, the convulsive movements returned, and continued for half an hour. The day after this the jerkings returned again at seven o'clock in the morning, but were much slighter than before. On the 11th, the convulsive movements returned again, and were not confined to the upper extremity, but involved the leg as well, the face also, and the angle of the mouth. On the 12th and 13th, the child had two fits in the day, affecting the whole of the left side: he cried and screamed towards the termination of the fits, but he was sensible throughout them. Each fit was followed by profound sleep.

Early in the morning, the 14th, Mr. Dunn was called up in consequence of a very severe paroxysm, which lasted three hours: the convulsive movements, affecting the left side from head to foot, were very severe: at times he screamed, at others he was quiet, and *throughout knew all about him.*

Under the increased frequency and severity of these attacks, and an extension of them, though in a slight degree, to the right side, with other symptoms of irritation of the brain, the patient died, and, on examination, it was ascertained that there existed an extensive deposit of tubercular matter on the surface of the right hemisphere of the brain, the opposite to the side on which the convulsions took place, and that a slight and recent deposit had taken place on the surface of the left hemisphere, and that the cerebral substance around the tubercles was in a state of red softening, interspered with inflammatory products, in considerable quantity. The tubercular deposits exciting inflammation of that portion of the brain which was in their immediate vicinity, no doubt gave rise to the convulsive movements on the left side, as well as to those which had began to show themselves on the right side of the body.

I would lay it down, then, that epileptiform convulsions without loss of consciousness are essentially distinct from true epilepsy, and may be developed by even a slight morbid irritation of the brain.

You will see that what we have got to explain by any theory of the pathology of epilepsy, is—

1st. The sudden occurrence of complete loss of consciousness.

2nd. The sudden privation of voluntary and locomotive power, with more or less violent epileptiform convulsions.

3rd. And all this occurring *at certain periods*, with more or less uniform and regular intervals, during which the patient may, and frequently does, return to a condition perfectly normal.

Lastly, our theory must explain why it is that these fits are so often accompanied with a maniacal state, and how it happens that their frequent repetition tends to destroy the power of the brain as the organ of the mind; and, moreover, greatly to impair the whole nervous force.

It seems needless to occupy time with discussing whether, during these formidable paroxysms of epilepsy, or, as it used to be called, of "falling sickness," the muscles or the nerves are primarily affected. All the obvious phenomena point to the nervous system as being chiefly engaged, and to the muscular convulsion as entirely consecutive to, and dependent on, the disturbed state of the nervous system. I would remark, kowever, that the enormous development of muscular force which must be produced during the convulsive paroxysm, must, in conformity with the discoveries of Matteucci, alluded to in my last lecture, have a most powerful reaction upon the nervous system.

The first point, then, which should occupy our attention must be as to the part of the nervous centres which is mainly disturbed in this disease —whether the spinal cord or the encephalon; and, if the latter, whether the whole or part of it: for it cannot be admitted that the disease is one of the nerves only: the nerves, indeed, may convey irritation to the centre, and again reflect that irritation to the muscles; but it would be impossible for such an amount of irritation as would create the paroxysm of epilepsy to exist without giving rise to great disturbance of the centres.

I think it cannot admit of doubt that in epilepsy the spinal cord is by no means primarily affected. That it is to a certain extent disturbed during the complete paroxysm which is accompanied by muscular convulsions, is evident; for otherwise the exciting cause of the convulsions could not reach the muscles of the limbs: but then this disturbance is secondary.

The nature of the convulsions shows that the spinal cord is not primarily affected. In my former lectures I have shown that the character of the convulsion dependent on primary irritation of the spinal cord is *tetanic*, with more or less permanent rigidity of the muscles and opisthotonos; and this can be clearly demonstrated by experiment. But although the convulsions of epilepsy are often complicated with a good deal of tetanic spasm, they nevertheless always present features which distinguish them, in a very marked way, from the tetanic convulsions, by the alternate contraction and relaxation,—violent combined movements, resembling voluntary acts, succeeded by relaxations, to be again succeeded by violent contractions.

Furthermore, if the spinal cord were affected primarily, we could not explain the sequence of the phenomena in the complete paroxysm of epilepsy.

If the spinal cord were primarily disturbed in epilepsy, the sequence of the phenomena would be—first, muscular disturbance, in consequence of the state of disturbance of the cord; then impairment of consciousness, in consequence of the extension of the disturbed state of the cord to the brain.

Now the natural sequence of the phenomena is—first, loss of consciousness; secondly, muscular convulsions.

Moreover, the supposition of the primary existence of disturbance of the spinal cord leaves us altogether without the means of explaining the phenomena of that form of epilepsy which in its consequences to the patient is quite as formidable as that accompanied by convulsions. I mean that form which consists simply in loss of consciousness, which lasts for a variable term, and then the patient recovers himself.

Lesions of the spinal cord, it is now well known, do not affect consciousness. You may have nearly the entire cord severed from the brain, and yet consciousness will be retained. A man falls from a height, and fractures his cervical vertebræ, smashing a considerable portion of the cervical region of the spinal cord: he is taken up paralysed, in both sensation and motion, at all points below the head, but *consciousness is undisturbed*.

In the convulsive diseases confessedly spinal in their origin,—namely, in tetanus and laryngismus,—consciousness is undisturbed, or but slightly affected, however violent the convulsions may be.

It seems, therefore, certain, not only that a highly disturbed state of the spinal cord will not impair consciousness, but also that that state of disturbance of the cord is not prone to extend itself to the brain, and to interrupt the functions of that organ.

And these arguments applied to the ordinary spinal cord of anatomists—the intraspinal nervous mass—are equally opposed to the location of the disease in the true spinal cord of Marshall Hall, or in the sensorium commune of Prochaska. The sensorium commune of Prochaska is the spinal cord *plus* its intra-cranial continuation as high up as the crura cerebri. But primary irritation of this latter part produces the same phenomena as that of the spinal cord, with the addition of more or less laryngismus: therefore it is not the part first affected in the epileptic fit.

It is plain, then, that the primary disturbance in the epileptic paroxysm must be located in some part of the brain.

Now this organ is divisible into certain parts, each of which, there can be no doubt, enjoys a separate proper function, notwithstanding that all the parts are intimately united to each other.

These parts are—

First. The hemispheric lobes, consisting of the convolutions and the large mass of fibrous matter connected with them.

Second. The corpora striata and the optic thalami, in intimate connection with

Third. The medulla oblongata.

Fourth. The corpora quadrigemina, in intimate connection with, and part and parcel of the mesocephale.

Fifth. The cerebellum.

Pursuing the method of exclusion, I hope to arrive at the determination of the part the disturbance of which gives rise to the phenomena of epilepsy, and of the epileptic paroxysm.

I shall first eliminate the medulla oblongata. An affection of this part, such as could provoke convulsions, would give rise to *tetanic*, not to *clonic*, convulsions; and, in some cases, it would act so powerfully and so directly upon the muscles of respiration, that it would probably in many instances annihilate that process altogether. It is true, indeed, that a certain extent of laryngismus often complicates the epileptic convulsion; but primary disturbance of the medulla oblongata would render laryngismus a constant and necessary accompaniment of the epileptic fit, *which is not the case*.

Primary affection of the medulla oblongata does not explain the early and constant loss of consciousness which is pathognomonic of epilepsy, and which is often its *only* symptom.

Diseased states of the medulla oblongata show themselves in impaired deglutition, in vomiting, in altered rhythm of the respiratory movements, in an abnormal proneness to emotional excitement, but not in impaired intellectual action, nor in any affection of consciousness.

We cannot admit, then, that epilepsy is due to a primary disturbance of the medulla oblongata.

We come next to the Corpora Striata and Optic Thalami. These remarkable ganglia, although intimately connected with each other, are nevertheless very different in structure, and probably, also, very different in function. They are no doubt directly concerned in the development of voluntary motions and of sensation, and their intimate anatomical union is in harmony with the close connexion and interdependence of sensation and motion. They have nothing to do with intellectual operations, and therefore not with consciousness; their functions seem limited to the simple exercise of the will, or to that of the perception of some impression made on a sentient organ. If the corpus striatum or optic thalamus be diseased, you have paralysis of motion or of sensation, or both; but a sound state of intellectual power, and of the consciousness, is quite compatible with extensive disease of both of these organs, provided it does not extend beyond them. Mechanical irritation of these bodies does not produce convulsions, nor does any morbid state of them ever give rise to these disturbances of motion. It is clear, then, that these bodies can no more claim to be the seat of the primary disturbance in epilepsy, than the medulla oblongata.

Has the cerebellum any share in the production of epilepsy? I think we must answer this question in the negative likewise. The cerebellum has no influence on consciousness: the absence of the cerebellum is perfectly compatible with consciousness and a certain amount of intellectual power, and these powers remain intact even where there is considerable disease of that organ. Moreover, mechanical irritations of the cerebellum do not give rise to convulsions.

There remain, then, only two parts of the brain in which we can localize the primary disturbance in the epileptic paroxysms—namely, the hemispheric lobes, and the mesocephale.

I will at once confess that my reflections upon this subject have led me to the conclusion that both these parts of the brain are greatly concerned in the production of the epileptic state, and in the development of the paroxysms. First and mainly, the hemispheric lobes; secondly and consecutively, the mesocephale.

You will bear in recollection that the complete epileptic paroxysm exhibits two features essentially distinct from each other: first, the loss of consciousness; secondly, the convulsions. The loss of consciousness and the other mental phenomena are dependent upon a disturbed state of the hemispheric lobes; the convulsions upon a disturbance of the mesocephale, consecutive to, and derived from, the disturbance of the hemispheric lobes.

There is no point in physiology more clearly made out than that the organ which is immediately active in the manifestation of intellectual operations, is the convoluted surface of the brain, and the fibrous mass connected with it—the hemispheric lobes. Every fact in comparative anatomy points to this conclusion. Experiment confirms it likewise. When the hemispheric lobes are removed from a pigeon, as in Flouren's celebrated experiment, which I have more than once repeated, the animal became a mere living machine, capable only of manifesting the physical phenomena of life, exhibiting no indication of mental operation, nor of consciousness; it fell into the deep unconsciousness of epilepsy.

In all instances where the nutrition of the cerebral hemispheres is disturbed the intellect suffers: you have delirium or a maniacal state; or if the disease be of a kind tending to check nutrient change, or to destroy it, you have more or less sopor.

So, also, inflammatory states of the arachnoid and pia mater covering the convolutions of the brain, disturb the intellectual operations, because they are so intimately connected with the hemispheric lobes, being as it were the carriers of nutrition to them, that the nutrition of these membranes cannot be disturbed without perverting that of the convolutions themselves.

Although it is perfectly true, that the brains of persons dead of epilepsy in its earlier periods, will exhibit, as Foville remarks, "nothing, absolutely nothing, which differs from the normal state," unless they have died in the attack, when the cerebral congestion which exists is, in the words of the same distinguished physician, "a feature, not of epilepsy, but of the state of asphyxia induced by it, and in which the patients have died;" still, in the more advanced stages of the disease, when the patients have experienced many fits, morbid appearances are met with, and these affect the hemispheres of the brain chiefly. You have among the most common, opacities and thickening of the membranes, shrinking of the convolutions, enlargement of the sulci between them, increased subarachnoid fluid, alterations of colour, and consistence of the grey and white matter of the hemispheric lobes. These alterations must be looked upon as the accumulated effects produced by the various paroxysms. Each fit does some amount of damage to the brain: in the interval, the brain recovers itself to a great degree, when a new fit comes on, and new mischief is done; and so the repetition of the paroxysms leaves the brain altered as I have described it.

But, observe, the alterations are not of the cerebellum, nor of the medulla oblongata, nor of the corpora striata or optic thalami—but of the hemispheric lobes.

Bouchet and Cazaurielh, who have conducted an extensive series of researches into the clinical history of epilepsy found these alterations of the hemispheric lobes so frequent in the chronic cases, that they attribute the disease to a chronic inflammation of the cerebral lobes, which determines epilepsy if it affect the white substance, insanity if it affect the grey.

I refer to these researches, not because I believe that the conclusion founded on them by their authors is correct, but because they strikingly indicate that the seat of the organic disturbance (which these authors admit to be *caused by* the fits) is in the hemispheric lobes.

It cannot, I think, under the weight of argument which may be adduced in reference to the office of the hemispheric lobes, be doubted that an affection of these parts is capable of inducing all the phenomena of epilepsy, as far as regards consciousness and sensibility.

But an important question remains: can a disturbed state of the hemispheric lobes induce or excite convulsive movements? The proper answer to this question appears to me to be this:—under ordinary stimulation of the substance of the hemispheres, the fibres are incapable of exciting motion. It is not the office of these fibres to propagate the nervous force to muscles, but to other nervous centres. Their function is to establish communications between the great sheet of vesicular or grey matter which covers the convolutions of the brain, and the corpora striata, optic thalami, and mesocephale, so that changes in any of these centres may be propagated from any one to any other, or to all the rest. Hence the sections and irritations by mechanical and galvanic means to which these fibres have been subjected in the hands of various experimentalists, produce no disturbance of motion, so long as the irritation is strictly confined to them.

So far then, anatomy and experiment denote to us that of themselves these fibres of the hemispheric lobes cannot excite motion, but that they may do so through their influence upon other ganglia of the brain; and such phenomena, as I referred to at the commencement of the lecture, as a convulsive affection of the whole of one side of the body, evidently brought on by the deposition of tubercular matter on the surface of the cerebral hemisphere on the opposite side, and its consequent irritation, show that convulsive movements may be excited by a superficial lesion of the hemispheric lobes.

Hence we must not deny to these lobes a certain power of exciting motion, either directly or indirectly, through their influence upon other ganglia of the brain. But it is important to remark, that the influence of the hemispheres is most manifest for this purpose when the lesion is superficial: that is, when it affects the grey matter. A deposition of tubercle, such as took place in the case I described at the commencement of the lecture, would produce little or no disturbance if it took place in the white substance: it would interrupt the functions of some of the fibres; but when deposited in the vesicular matter, among the particles of the generating plate of the nervous battery, the development of the nervous force becomes seriously impaired.

From all these facts, then, I infer that a disturbed state of the hemispheric lobes may undoubtedly give rise to so much of the phenomena of the epileptic paroxysm as refers to the affection of consciousness and sensibility, and that it may, *in some degree* at least, contribute to the development of the convulsions.

We must not forget that, in forming a theory of the pathology of epilepsy, we have to explain not a continuous state of disturbed sensation and motion, but a malady, the grand feature of which is the *periodical* recurrence of the paroxysms, the patient being wholly or almost restored to his normal state in the intervals between the attacks.

Now, it is not a little remarkable that there is no organ in the body which exhibits the same kind of periodical activity and quiescence in the performance of its functions, *as the hemispheric lobes*. This periodicity is manifest in the phenomena of sleep: throughout life the tendency exists that for a certain period each day the state of sleep comes on—when intellectual acts cease, the will is not exerted, the perceptive powers remain quiescent, the channels of sensation are closed. This tendency is greatest in the early periods of life than at any other time—greatest of all in infancy, when sleep engrosses the largest portion of time: very marked in childhood, less imperious in adult life, but assuming a somewhat increased influence in second childhood—OLD AGE.

It is unnecessary for me to take up time in adducing arguments in support of the assertion, that the phenomenon of sleep belongs to the brain, and especially to the hemispheric lobes: I must content myself with the statement, that the periodical recurrence of sleep is a part of the train of phenomena which belong to the normal nutrition of the brain. The diurnal variations of our planetary system are not more surely influenced by the laws which regulate them than is the brain by that law of its nutrition which enforces that the activity of that part of it which is immediately associated with the operations of the mind should be from time to time interrupted by sleep.

In hybernating animals, we have a remarkable example of the extraordinary influence of this law of the nutrition of the brain, and of the curious mastery which it exercises over all the other processes of life. When the winter sleep sets in, the breathing becomes slow, the circulation is languid, the body feeds upon the store of fat which had been laid up during a period of exertion, the chemical changes of the body are reduced in activity and complexity. It lasts a certain time, and the animal becomes gradually roused, and resumes its wonted place among the active denizens of the world.

We have, indeed, in the animal economy, phenomena in some degree analogous to this alternate activity and quiescence of the brain. The heart beats with a certain rhythm, and pauses after it has accomplished its systole and diastole.

Respiration exhibits a similar rhythm in its movements.

So, also, perhaps, the peristaltic action of the bowels.

Something like a physical explanation of these phenomena may be offered, but we know no physical cause for sleep; and, in the existing state of knowledge, we must rest content with regarding it as an ultimate fact, that it is to the peculiar economy of the brain, and to the laws which specially regulate its nutrition, that we owe the unspeakable advantage and enjoyment of

"Tired Nature's sweet restorer, balmy sleep."

When these laws are impaired, there is either too much sleep, or it is almost banished from the eyes, and nature at length sinks exhausted.

Dr. M. Hall, indeed, thinks that he can derive some physical explanation of the phenomena of sleep from the antagonism which he assumes to exist between what he calls the spinal system and the cerebral system. "As sleep approaches (he says) the levator palpebræ, a muscle of voluntary motion, ceases to act; whilst the orbicularis, a muscle of true spinal action, contracts and closes the eyelids.

"Imagine (he adds) "an event similar in its nature to take place in the muscles of the neck: volition ceasing, spinal action being energetic, certain muscles contract and compress the veins, and a degree of fulness of the neck and face, with turgidity of the eyes, is the obvious result; nay, there is even a degree of laryngismus heard in the respiration. All this is most observed in the first deep sleep."

Now, to pass over certain very decided sources of fallacy in this view, such as the assumed energetic condition of spinal action, the contraction of the orbicularis and other muscles, the distinction between a muscle of true spinal action and of cerebral action, it is plain that it involves a *petitio* *principii*, and this is expressed in the first three words of the passage I have quoted—"as sleep approaches;" and in two words of the succeeding paragraph—"volition ceasing." The whole question is involved in these two phenomena—the approach of sleep, the abeyance of volition: if we can determine what influences the approach of sleep, to what its first beginnings are due, what determines the abeyance of volition, we need inquire no further. According to Dr. Hall's views, the increased energy of the spinal system, to which is due the contraction of the orbicularis and of certain muscles of the neck, is the immediate consequence of the first approaches of sleep, of the beginning of the state of quiescence of the cerebral system. In short, the state of sleep has already begun ere the exciting cause of this contraction of the muscles of the neck is brought into operation.

But to return to the question which we have in hand.

I say, then, that the periodical character of the phenomena of the normal nutrition of the hemispheric lobes of the brain denotes strikingly that these organs have much to do with the primary disturbances which cause those periodical paroxysms which constitute epilepsy.

But there is another part of the brain to which I think we must assign some share in the production of epilepsy.

This is that part of which the corpora quadrigemina form a prominent portion—the upper and posterior part of the mesocephale, the nodus encephali, the connecting medium between the several parts of the encephalon, which is not only anatomically related to all the constitutional parts of that organ, but possesses inherent powers of its own of great and general influence upon the movements of the body.

I have already referred to this part in my last lecture, as being the centre of emotion: as such it is much influenced by mental states; and we know that epilepsy is often brought on by the shock produced by seeing another fall into a fit.

Flourens states, that while superficial sections of the corpora quadrigemina produce no other effect than the impairment or loss of vision, deep sections produce general convulsions.

I have been desirous of ascertaining whether the parts within the cranium, if excited by the stimulus of galvanism, would give rise to any phenomena, similar or analogous to those produced by galvanic stimulation of the spinal cord. Accordingly I determined to subject them severally to the action of the magneto-electric rotation machine,—a most convenient instrument for physiological experiments.

The experiments were performed on rabbits. I took the spinal cord first: here we had the well-known tetanic effects to which I have already frequently referred.

Next I tried the medulla oblongata: the effects of the stimulation of this organ were much the same as those produced by irritating the cord.

I then tried the corpora quadrigemina and the mesocephale. Having passed fine brad-awls into the cranium in such a direction as I had previously satisfied myself would lead to this organ. I subjected it to the influence of the machine: general convulsions were produced, of a character essentially different from those which resulted from stimulating the spinal cord or the medulla oblongata. They were combined movements of alternate contraction and relaxation, flexion and extension, affecting the muscles of all the limbs, of the trunk and of the eyes, which rolled about just as in epilepsy.

On inserting the awls into the hemispheric lobes, still different effects were produced by the application of the machine. I could observe nothing like true convulsions; but slight convulsive twitchings of the muscles of the face took place, which were no more than what would be caused by the stimulus of galvanism acting upon the nerve of the face.

These experiments, which I repeated several times, and each time with like results, seem to denote that convulsions are modified according to the part of the cerebro-spinal axis which is primarily excited: if it be the spinal cord, they are tetanic; if the medulla oblongata, they are tetanic likewise, other parts being involved; if the corpora quadrigemina and the mesocephale, they are epileptic; if the cerebral hemispheres, you scarcely have any convulsions, but slight twitchings of the muscles.

Weber, in his excellent essay on Muscular Motion, published in Wagner's "Handworterbuch," of physiology, refers briefly to similar experiments performed by himself on the brain of a frog, and leading to the same results; and he draws this conclusion, "that the tonic convulsions, as trismus and tetanus, are the effect of disturbance of the functions of the spinal cord; whilst the clonic convulsions are due to derangements of the functions of certain parts of the brain."

Thus, then, I come to this conclusion respecting the parts of the nervous system which are directly concerned in the production of the epileptic paroxysm.

The part of the encephalon primarily disturbed, is the hemispheric lobes; if the disturbance do not go beyond a certain point, the phenomena are limited to loss of consciousness and impaired intellectual action, with more or less of sopor. But if the disturbance be considerable, then the tubercula quadrigemina and mesocephale become involved, and *epileptic convulsions* are produced. If the disturbance of this centre be very great, the medulla oblongata and the medulla spinalis become much excited, and the convulsions are complicated with a good deal of the tetanic character.

We know that there is a great variety in the intensity of the epileptic paroxysms, *i. e.* not only in the intensity and duration of the coma, but also in the violence of the muscular paroxysm: all this depends on the nature and force of the primary disturbance in the cerebral hemisphere, but in all instances the hemispheric lobes are first disturbed, next follow the corpora quadrigemina, and upon the intensity of their disturbance depends the extent to which the medulla oblongata and the spinal cord are engaged.

A question not less important to the determination of a correct pathology of epilepsy than that which we have now discussed, must next occupy our attention. This is, as to the intrinsic nature of the disturbance of the brain in this malady, and the exact organic condition of it which is capable of exciting the epileptic phenomena.

Is it a state of inflammation ? or one of congestion ? or is it a condition the opposite of congestion—one of deficiency of blood ? or, in fine, is it a perverted nutrition, due more to a depraved *quality* of blood, rather than to alterations in its *quantity*, but by no means independent of the latter ?

It is scarcely worth while to occupy time by stating the arguments against the idea of the inflammatory nature of epilepsy. We have now sufficient knowledge of the diseased states of the brain to enable us to recognise that affection when it occurs. Moreover, inflammation does not occur without leaving its traces behind,—and it is impossible that epilepsy could be an inflammatory disease, and leave behind it so little marks of such a disturbance of nutrition, as would leave it in the power of so able and so experienced an observer as Esquirol, to say—" we freely confess that pathological anatomy has hitherto thrown but little light upon the immediate seat of epilepsy." The records of cases of undoubted inflammation of the brain show that epilepsy is not one of its symptoms, whatever part of the brain may have been the seat of the inflammatory process.

It may next be asked, is epilepsy caused by a state of congestion of the brain ? This is a favourite notion with many ; nor can one wonder that it should be so, when we consider how exclusively of late years the attention of pathologists has been directed to the state of the solids, and how often they have failed to find any indications of morbid change, save such as are due to a greater or less amount of blood in the blood-vessels. It has been the prevailing tendency to look for congestion of blood, and to rest content with it as the cause of the phenomena during life, the observer all the while overlooking the important inquiry, as to the period of the occurrence of the congestion ; whether it might not have occurred in the mortal agony,—whether, indeed, it could fairly be regarded as having taken place during life,—or whether it might not be a post-mortem appearance.

But what does morbid anatomy teach us on this point ? Why, that congestion is far from being a constant appearance in the brains of epileptics,—that its presence is mainly influenced by the mode of dying of the patient,—that in a large number of cases there is rather a deficiency than a superabundance of blood in the brain,—and that when congestion of the brain does occur in epilepsy, it may be looked upon rather as the consequence of the paroxysm than as its cause, the paroxysm being such as, by the mechanical interference which it creates with respiration and with circulation, greatly retards the return of the blood from the brain—as from all other parts—to the right side of the heart.

Furthermore, it may be now confidently affirmed, as pointed out by experience, that a state the opposite to that of congestion—namely, a state of *anæmia*—is favourable to the occurrence of epilepsy ; and the convulsions of children and those of lying-in women are frequently brought on from anæmia due to imperfect nutrition in the former, and to excessive floodings in the latter.

The following case—and my experience has supplied me with several similar—is a striking instance of the extent of disturbance likely to arise from great loss of blood :—

A married woman, aged 30, was admitted into King's College Hospital, in January 1849. Two years ago she had a miscarriage after a pregnancy of three months. In August 1847, she was delivered by instruments of a dead child. In June 1848, she again became pregnant, and, after having gone two months, she miscarried, without excessive hæmorrhage. From this time her health began to fail—she became low and desponding—and made no blood ; looked pale and thin.

On the 28th of last December, having been some time in a state of great weakness, she suffered from giddiness of head, and became slightly delirious. For these symptoms she was bled from the arm, and had leeches applied to her head, and a blister to the back of her neck. The next day, the symptoms remaining unaltered, six leeches more were applied to her head. While these were yet drawing, she gave a slight scream, and fell forwards in a fit of convulsions, during which the orifice in the vein burst open, and a good deal of blood was lost.

On the 30th of December, while six leeches more were being applied to her head, she had a second fit, exactly resembling the first, and during this the orifice in the vein in the arm again opened, and more blood was lost.

On the 3rd of January she had a third fit, which lasted about one hour, and on the following day she had two fits. She now became maniacal, but controllable, and in this state, exhibiting all the signs of extreme anæmia, she came into the hospital.

Here, then, is a remarkable instance in which a state of extreme anæmia—the practice of general and of local depletion—offered no protection against the epileptic state : might we not say that an opposite mode of treatment, one adapted to improve the blood both in quantity and quality, would, in all likelihood, have saved the poor woman from the fits of epilepsy, and from a prolonged state of chronic mania under which she afterwards suffered ?

Dr. Marshall Hall attributes much of the phenomena of epilepsy to vascular congestion. He has put forward the following theory of epilepsy. He says :—" 1. Some source of irritation, acting in a reflex or direct manner, excites the spinal system. 2. Contraction of certain muscles of the neck; compression of the veins, and congestion of the cerebrum, with cerebral symptoms—cerebral epilepsy—are the consequences. 3. Then follow laryngismus, with every formidable convulsive symptom, spinal epilepsy, and congestion of the encephalon in a tenfold degree, with all its dire effects on the intellect and on the limbs."

Admitting, as I do, the great ingenuity of this theory, I cannot accept it as a correct explanation of the phenomena of epilepsy, or as adequate to explain the various and complicated symptoms of that malady.

Without discussing any further the question whether congestion of the cerebral bloodvessels can excite the epileptic paroxysm (a question, I think, answered in the negative by all reason and experience,) there are two points which need to be proved in the most unequivocal manner before this theory can be admitted as adequate to explain the phenomena of epilepsy.

The first is, that contraction of the platysma and of certain muscles of the neck can cause congestion of the veins of the neck, and consequently of the head. Upon this point I confess that I can come to no other conclusion than that the anatomical disposition of the platysma unfits it to act as a compressor of the veins of the neck. If by its contraction it exercises any influence upon the venous circulation, especially the deep-seated veins, it would rather tend to protect them from the pressure of the super-incumbent tissues. When the platysma myoides is strongly contracted, the hollow of the neck is obliterated, the integuments are raised up, and they are rendered tense between the clavicle and the jaw. To effect such contractions of this muscle, which is not so completely under voluntary control as some others, requires considerable effort, and the simultaneous contraction of other muscles. This effort, by impeding respiration in some degree, tends more or less to congest the veins of the head and neck: but I have seen strong contraction of the platysma on both sides kept up for a considerable time without inducing any amount of congestion which would attract notice unless the attention was particularly called to it. In slight or partial contractions no such congestion occurs, and it is still less likely to take place in any contraction which might be caused by reflex action, in which there is no effort whatever on the part of the individual.

A second point, which needs proof, is the connection between *laryngismus* and convulsions. This connection, according to Dr. Hall's views, is so intimate, that the former is a necessary precursor of the latter. In other words, it may be said that convulsion of the laryngeal muscles must precede that of the other muscles. Surely such a view as this is untenable. There cannot be any necessary connection between the convulsion of the laryngeal muscles and that of the other muscles supplied by cerebro-spinal nerves, so that convulsions of the one should necessarily precede that of the other. All muscles are equally exposed to the cause which excites the paroxysm; if that cause excite only one side of the brain, the muscles on the opposite side of the body are thrown into convulsion. And although we sometimes find that one set of muscles will take precedence of another in convulsions, there is no constant rule to determine what muscle shall be first convulsed, and especially that precedence does not belong to the laryngeal muscles.

I have ascertained, by direct experiment, that general epileptic convulsions may take place when laryngismus, which is the chief cause of the impediment to the venous circulation, and of the subsequent cerebral congestion, cannot occur.

I looked for some poison which was capable of exciting epileptic convulsions. Although the Œnanthe crocata is stated by Toxicologists to have this power to a remarkable degree, I was unable to produce the effect in dogs with either large doses of the expressed juice of the root or with large quantities of a strong decoction of the roots. I therefore had recourse to Hydrocyanic acid, which developes the epileptic state in a very marked manner.

The first experiment was upon a large dog. A free opening was made in his trachea, so that inspiration and expiration were performed with the utmost freedom. The dog was then poisoned by Prussic acid. In a short time epileptic convulsions of the usual character, complicated with a good deal of spinal convulsion, ensued.

In the next experiment I proposed to divide the recurrent nerve on each side, and thereby to paralyse the constrictors of the glottis. Although the division of one of the nerves was not affected, the other was effectually cut across, and a large piece cut out of it. The voice of the animal was destroyed, and, as the muscles on one side were paralysed, it was obvious he was quite as unable to close the glottis completely as if the muscles were paralysed on both sides. Hydrocyanic acid was then administered, as in the first experiment, and very complete convulsions were very shortly developed, the eyes being very much affected, and all the muscles of the trunk and extremities.

The third experiment consisted in tracheotomizing a dog, and introducing a large tube into the trachea, which insured a greater freedom of inspiration and expiration than when there was only a simple opening. The administration of Hydrocyanic acid was followed by the same distinctly epileptic general convulsions as in the two former instances.

Undoubtedly in all these experiments, especially in those in which an opening was made in the trachea, there was less impediment to breathing, and less venous congestion; but, notwithstanding this, the epileptic state was fully developed under the influence of the poison. A free opening in the trachea, and the prevention of the consequences of laryngismus, did not prevent convulsions from taking place.

Thirdly. We may ask, is epilepsy due to an anæmic state of the brain,—to an imperfect supply of blood to that organ?

Although I cannot admit that epilepsy is commonly due to an anæmic state of the brain, still I must say that there are more facts in favour of this view than of the congestive theory, and that an imperfect supply of blood to the brain is very often associated with the epileptic condition.

I have already referred to cases in which epilepsy had supervened upon an anæmic state. These might be multiplied considerably, did time permit. What is particularly deserving of attention is the class of cases where convulsions ensue upon excessive uterine hæmorrhage,—cases long recognised by the most experienced obstetrical physicians.

A cachectic state, in which the red particles of the blood are only very imperfectly developed as to quantity, is very apt to accompany epilepsy. We see this frequently in hospital practice, in a very hard-working class of men—compositors in printing-offices, especially in those of newspapers. These men frequently work all night; and, to support them in their toil, they addict themselves to the frequent use of spirits or other fermented liquors. General nutrition fails: the red particles are imperfectly regenerated, and the patient becomes epileptic.

Patients labouring under chronic disease of the kidney are much more apt to become epileptic, if they are pale, and if their blood is deficient in its red particles.

House-painters, or others exposed to the contamination of lead, are apt after some time to fall into a fearfully cachectic state, of which a principal feature is the deficiency in the red particles of the blood. I have seen several persons, under these circumstances, become epileptic shortly before death, and, in fact, die in consequence of the violence of the epileptic paroxysms.

All these are striking instances to show how blood, deficient in quantity,—deficient in one of its most important staminal principles (the others, perhaps, not being quite normal,)—and, perhaps, contaminated by the presence of some foreign noxious principle,—is favourable to the production of the epileptic state.

Experimental physiology supplies us with very striking facts to show that an insufficient supply of blood to the brain is very apt to occasion epileptic convulsions.

Every one who has witnessed the slaughter of sheep, which is effected by dividing the great arteries in the neck, must have observed the strong convulsions which so frequently precede death in animals killed in this way. All animals killed by loss of blood exhibit the same phenomena precisely, and die with convulsions of a more or less violent kind.

Dr. Seeds many years ago performed a series of experiments to observe the phenomena accompanying the deaths of animals by loss of blood. In all the cases convulsions preceded death.

In Sir Astley Cooper's experiments, by the application of ligatures to the carotid and vertebral arteries, the functions of the encephalon seemed more influenced by occlusion of the latter than of the former arteries. A considerable portion of the blood of the carotids is distributed to the external parts, to the membranes, to the parietes of the cranium; and those branches which supply the brain anastomose very freely with the vertebral arteries.

When the vertebral arteries were tied or otherwise obstructed, the carotids having been previously tied, very serious symptoms ensued; a state of insensibility was induced, which frequently was accompanied with convulsions, affecting the muscles of the eye-balls, as well as those of the extremities. In one experiment the carotids of a rabbit were tied, without any material effect. In five minutes the vertebral arteries were compressed by the thumbs, the trachea being completely excluded. Respiration stopped almost directly; *convulsive struggles* succeeded; the animal lost its consciousness, and appeared dead. The pressure was removed, and it recovered, with a convulsive inspiration.

On a second compression of the vertebrals, similar phenomena ensued.

Three times more the compression of the vertebrals was repeated, with like result. On the fifth occasion, says Sir Astley, the result was the same—namely, suspended respiration, convulsions, loss of motion and consciousness.

These, surely, are symptoms very closely resembling those of epilepsy.

It is much to be regretted that Sir Astley's experiments on tying the jugular veins were not more numerous. Only two are recorded. In one, after ligature of both jugular veins, the respiration was reduced in frequency to about half the usual number for a few hours, and the animal recovered without any other untoward symptom. In a second, the same reduction in the frequency of the breathing ensued upon the application of the ligatures: for five days the animal seemed dull, and on the seventh day it became convulsed, and frequently rolled over, and lost its voluntary power and its sensation in a great degree. But these symptoms, it was proved after death, were due to the extravasation of a clot of blood in the left ventricle of the brain.

The application of ligatures to the jugular veins, so as to impede the return of venous blood from the brain, is evidently, so far as these experiments go, productive of less serious consequences than the cutting off the supply of blood to the brain.

But we do not need experiments to prove what an enormous extent of congestion the brain can bear without inducing anything like an epileptic state. Look at cases of old asthma, with dilated right side of the heart, and large jugular veins, into which the blood freely regurgitates at every systole of the auricle; witness, also, the excessive congestion which accompanies severe suffocative catarrh, chronic bronchitis, and some of the complications of phthisis which are attended with great dyspnœa. If congestion of the brain were the common or even frequent cause of epilepsy, that malady ought frequently to accompany the disease above named: yet patients labouring under these complaints, although they often become comatose shortly before death, seldom exhibit anything like convulsions, nor anything of a genuine epileptic state.

I come, therefore, to this conclusion,—that while it is highly improbable that a state of congestion *per se* gives rise to the epileptic paroxysms, it is extremely probable that the opposite state, one of anæmia, or of imperfect supply of blood, does frequently cause the complete epileptic fit, and that such a state is much more to be feared and guarded against by practitioners than the state of congestion, not only because its consequences are more serious and more persistent, but also because they are much less amenable to the remedies within their reach.

At the same time, this state of anæmia is not in itself the cause of epilepsy. We have too many instances of epileptics in whom no indication of an anæmic state exists, to allow the admission that the influence of anæmia operates in any other way than as one of the most potent disturbers of the nutrition of the brain; and we are therefore led to class it with other causes of disturbance which interfere with and derange the normal nutritive processes of the brain, giving rise to irregular actions of certain of its parts.

Having freely discussed the more obvious disturbances of the circulation in the brain which have been and are set down as productive of the epileptic state, it remains for me to develope a theory of epilepsy such as seems most in accordance with our knowledge of the physiology and of the pathology of the brain.

I would lay it down that epilepsy denotes a state of abnormal nutrition of the brain.

This abnormal nutrition shows itself in the unnatural development of the nervous force at particular times, in such a manner as to disturb the functions of the whole cerebro-spinal centre, but of the brain in particular.

These periodical evolutions of the nervous force which gives rise to the complete epileptic paroxysm, may be compared to the electrical phenomenon described by Faraday, under the name of *disruptive discharge.*

We know that this phenomenon requires for its production, first, a highly charged or polarized body, which, when it reaches a certain point of tension, may be made instantaneously, and with violence, to discharge its electricity to a conductor.

Thus the abnormal nutrient actions of the brain in epilepsy, tend to produce a polar state of the particles of the Hemispheres, of the Tubercula Quadrigemina, and of the mesocephale, which, when it reaches a certain tension, discharges itself, and induces with great violence a rapid polarization of the neighbouring particles, involving in the general disturbance the medulla oblongata, the cerebellum, and the spinal cord.

In some instances the tension may be limited to the hemispheres of the brain,—then consciousness and intellectual action only are disturbed; either a comatose state is induced, which lasts for a certain time, or mania or delirium are produced. In such cases the state of tension may pass off slowly and gradually without any distinct discharge, and so the nervous matter may assume a state of equilibrium, without creating any serious disturbance of the other parts of the cerebro-spinal centre. In other cases the hemispheres and mesocephale pass quickly to the highest degree of tension, and a rapid discharge takes place, exciting the other parts of the brain and the spinal cord, with all the violence of the discharge from a highly charged Leyden jar, or the shock from the electrical organs of the torpedo or gymnotus.

The gradual and silent manner in which this state of tension is induced in the brain, and the absence of all appearances of mischief recognizable by our means of investigation in recent cases, the rapidity with which fit succeeds fit in the acute cases, leaving likewise no trace of organic mischief, denote that the peculiar state of the brain in epilepsy is brought on not by any change in the quantity of the blood, but by the accumulation of some material in the blood, which, acting on the brain as a poison, excites this polar state, and this disruptive discharge, and so escapes from the system, leaving the brain free from disturbance until a fresh accumulation excites a new paroxysm. The same comparison may be used here as I have already employed in speaking of other convulsive diseases. The nervous battery is excited by an abnormal fluid,—a fluid which causes it to develope the nervous force in irregular quantity,—a fluid which, when fully charged with its particular morbid element, excites a high degree of tension of the cerebral nervous matter, which can recover itself only by a discharge, which produces more or less serious disturbance of the neighbouring parts of the brain.

Under this view the infinite variety in the character and violence of the epileptic fits would be accounted for by variety in the quantity of the morbid material which contaminates the blood,—the poison which disturbs the normal actions of the brain,—by the different intensity with which it affects one part more than the other,—the comatose symptoms, being the more developed as the cerebral hemispheres are affected,—the convulsive symptoms, when the chief disturbance, is in the mesocephale,—and, perhaps, also by difference in the quality,—the virulence—of morbid element.

This humoral doctrine of epilepsy is supported by a host of striking facts. The influence of certain poisons—as Prussic Acid and Œnanthe Crocata—in the production of artificial epilepsy, the exact counterpart of the disease as it affects the human subject, is one of the most important of these. Saillant, a writer in the memoirs of the French Royal Society of Medicine (ann. 1782-83,) concludes a paper detailing some experiments on the artificial production of epilepsy, with these remarks:—"We are content with concluding that it is easier to produce an artificial epileptic paroxysm through the blood than by irritation of the brain and nerves." Saillant's experiments consisted chiefly in injecting air into the veins.

A second class of facts, bearing most strongly on this view of the nature of epilepsy, is the frequent connexion between this disease and imperfect eliminatory action of the kidney, a connexion which I have no doubt ere many years we shall find to be very much more frequent than is even now suspected.

Nay, a temporary functional suppression or deficiency in the secretory action of the kidney, would allow the urea, and perhaps certain other elements of the urine, to accumulate in the blood to such an extent as to exert a poisonous influence on the brain, and to develope the epileptic paroxysm. The fact, first I believe brought to light by Dr. Lever, that the urine of women who have suffered from puerperal convulsions is sometimes albuminous, suggests that in some of the patients who suffer this form of epilepsy the disease may be referred to defective action of the kidney. This point, however, has yet to be worked out, and when physicians come more generally to look for the causes of morbid phenomena in something beyond mere excess or deficiency of blood, we shall probably obtain some satisfactory elucidation of it.

A third class of facts favourable to this view is derived from the diseases confessedly humoral, and the paroxysmal character which they are apt to assume. I would allude more particularly to the effects of the paludal poison, and to gout. Under the influence of the former, we have periodical paroxysms almost convulsive in their nature. A severe fit of ague in its cold stage is not far from an epileptic convulsion. The marsh poison, whatever be its dose, shows its effects in regular periodical paroxysm; the poison accumulating in conjunction with certain nutrient changes in the blood, reaches the quantity necessary to produce a paroxysm only at certain periods. The introducting of quinine checks this regenerating or cumulative power of the poison, and ultimately kills it. In gout we have an analogous tendency to the accumulation of the poison so as to occasion paroxysms. The regular development of the gouty paroxysm at the spring and fall of the year in some individuals, and its frequent occurrence at short intervals for a certain time, as once a month or once in two months, are phenomena analogous to the periodical development of the epileptic paroxysm.

Lastly, we have the very important fact, that certain animal poisons, as that of small-pox, measles, scarlet fever, or even the poison of typhus, may, on their introduction into the system, produce epilepsy.

Of the *nature* of the morbid matter, which, by its accumulation in the blood, may produce the epileptic paroxysms, no conjecture can be formed in the present state of our knowledge. It may, perhaps, vary in different cases: in the renal cases, for instance, it may consist merely of certain retained elements of the urine. Of these, the experiments of Dumas and Prevost point chiefly to urea as the most highly poisonous; but I apprehend this point needs further investigation. In the ordinary cases we may assume that the morbid matter is some subtle agent, possessing properties allied to those of prussic acid, whose chemical nature may yet, in the progress of chemical analysis, be ascertained.

What are the sources of this morbid matter? I apprehend the most common source is the brain itself. The frequency with which epilepsy follows undue exhaustion of the nervous power, from anxiety, grief, long-continued thought, habits of intemperance—mental, as anger, rage, despondency, —physical, as the indulgence in ardent spirits or other fermented liquors. The influence, too, of mental shock, in the production of the epileptic state, must be regarded as denoting that direct disturbance of the nutrient actions of the brain under mental influence, may operate as a primary exciting cause of this malady.

Now all these causes tend directly to impair the nutrition of the cerebral matter. We have no difficulty in understanding that overwork or underwork (if I may use the word) of a muscle may impair its nutrition, and so weaken its powers. But we do not attribute this to an over supply of blood, or to an insufficient supply. The excessive or the imperfect exercise of the muscular force affects the tissue itself, impairs the nutrient changes which take place in it, disturbs the attraction between the blood and the tissue, and perhaps alters the nature of the material which is formed out of the effete particles, in what Dr. Prout calls the destructive assimilation of the tissues. Just in this way the nervous matter suffers in the first instance from excessive or perverted use, the nutrient changes are impaired, and the secondary processes of assimilation generate a material which becomes a source of contamination of the blood.

No doubt, however, there may be other sources of contamination,—the digestive organs, the sexual organs, the great glands,—which may not only generate morbid matters capable of contaminating the blood, but may, by the imperfect performance of their function, weaken or otherwise damage the nutrient changes of the nervous matter, so as to make it more susceptible of the influence of any noxious agent, or to cause it to generate a morbid matter.

Where there is hereditary taint, the inherited tendency is to the generation of what I might call the epileptic morbid matter under the influence of any cause which may disturb general nutrition, or impair the local nutrition of the encephalon.

Such is the theory of epilepsy which appears to me most consistent with the known facts of the clinical history of the disease, and with the general principles of physiology and pathology.

That it is sufficient to explain the ordinary cases where attack succeeds attack with more or less of periodical regularity, is obvious; this periodicity being explained partly by the periodicity of the normal actions of the brain, and partly by the re-accumulation after certain intervals of the morbid or poisonous matter. Nor is it inconsistent with this view that at the expiration of each of these periods the patient should experience not one, but a series of epileptic attacks in rapid succession, the number and violence of the attacks being determined by the quantity of the poison and its virulence, and, in some degree, perhaps, by the state of excitability of the nervous system.

Many instances occur where men have had but one epileptic attack during a long life. Are these cases explicable by this theory? Such cases may rank with the puerperal cases, or with the convulsions of children. They are due to some rapid change in general nutrition when the nervous system is in an excitable state. They are often caused by a debauch, excessive indulgence in the pleasures of the table, or of some other kind, which at once excites the nervous system and disturbs general and local nutrition.

An interesting question which I have found it convenient to postpone until now, is as to the validity of that distinction which I admit is useful for practical purposes, into *centric* or *eccentric* epilepsy.

Under the theory which I have just enunciated, all epileptic cases are strictly centric—that is, result from a cause acting directly upon the centre. But may not the cause originate at the periphery, and act upon the centre through incident nerves, affecting the brain through the spinal cord? To this question I think I must answer in the negative. Evidence is wanting to prove that the peripheral irritation of nerves is capable of exciting the epileptic paroxysm. You remember the remarkable conclusion of Saillant, which I have quoted above, "that it is easier to produce an artificial epileptic paroxysm through the blood, than by irritation of the brain and nerves." Then I may be asked, what becomes of the cases so generally admitted, in which epilepsy is caused by worms in the intestinal canal? in which, if you expel the worms, you cure the epilepsy. I am not prepared to deny the occasional association of worms and epilepsy, nor their connexion as cause and effect; but I would affirm that worms cause epilepsy not by direct irritation of the intestinal nerves, the spinal cord, and the brain, but by the disturbance of nutrition which they keep up. The mere presence of worms in the intestinal canal is an indication of deranged secretions there, and of a disturbance of its nutrition: worms do not flourish in a perfectly normal state of the intestinal canal. Therefore we may lay it down that there has been a disturbance of nutrition prior to the appearance of the worms, which is kept up and increased by the presence of the worms.

Another question connected with this subject appears to me deserving of consideration. Can permanent unchanging chronic disease of the encephalous or of the cranial wall, be regarded as capable of causing the epileptic fits? Take, for example, such a case as the following:—A man has been epileptic for many years of his life, and his malady has resisted various remedies. He dies, however, of some other disease. On inspection, the brain is found healthy, but about the centre of the falx there is a tumour as large as a small walnut. Has the tumour been the cause of the epileptic attacks in this case? I incline to say No to this question, because such tumours are of very slow growth, and we know that the brain adapts itself wonderfully to the extension of such morbid productions upon the space in which it lies,—because such tumours have existed without epilepsy,—because a cause in constant operation is not likely to produce an occasional effect. At the same time I think it must be admitted that a man with such a tumour is more liable to be epileptic under states of general or cerebral disturbance, than a man whose brain and its membranes are healthy, because the presence of such a tumour scarcely admits of the nutrition of the brain being perfectly normal.

Epileptiform attacks are apt to be produced by meningeal irritation, as I have already pointed out. Under frequency of repetition, and the consequent increased cerebral disturbance, these attacks may become epileptic; and this is the more apt to occur if there be any constitutional malady, —if the local mischief originate in any constitutional taint. Thus scrofulous deposits in the membranes will readily give rise to fits, at first epileptiform, and finally epileptic. And cases of the following kind are not uncommon:—A man contracts syphilis; some time afterwards, with or without other secondary symptoms, he gets periostitis of the tibia, or of some other long bone; at length he has an epileptiform attack, or it may be an epileptic fit; and now it is discovered that some part of the pericranium is painful, and there is good reason to believe that the dura mater is affected: there is periostitis within the cranium. Many of these cases do well under the judicious combination of iodide of potassium and mercury, or under the use of the former remedy only.

So, also, injuries of the head, proving after the lapse of a longer or shorter time injurious to some part of the osseous wall of the cranium, seem to cause epilepsy, and are more especially likely to do so if any derangement of general nutrition occur,—gout or struma, or the syphilitic taint. Perhaps in some of the cases epilepsy would have shown itself, even though no injury had taken place. How many hundreds of instances are there where injuries of the head, even of an extensive kind, have occurred, without a sign of epilepsy!

The terms *centric* and *eccentric* are so far useful as directing attention to the *source* of the depraved nutrition of the brain; but epilepsy is always the result of such depraved nutrition, and it is highly improbable that it can ever be looked upon as produced by reflex action—that is, by a peripheral irritation propagated to a centre, and exciting great irritation there, involving spinal cord, and motor and sentient nerves.

I shall conclude with a few remarks upon the treatment of epilepsy.

If much obscurity hangs over the pathology of this malady, we cannot wonder that our attempts to treat it have received so little encouragement.

One point of peculiar difficulty as regards the treatment of epilepsy arises from the uncertainty of the effects of remedies. Many of the anti-epileptic remedies produce no sensible effect on any of the great functions of the body: they do not purge, nor sweat, nor excite the kidneys. Under the use of the remedy the patient's fits become less frequent, less violent, and his general state improves. But it often happens that without any remedy fits becomes less frequent, less violent, and general health improves. Have we any means of distinguishing between what may be regarded as genuine effects of a remedy, and mere coincidences,—changes which our knowledge of the clinical history of the malady tells us may take place independently of the influence of any remedy?

In many instances I must confess I know no means of making this distinction. It is in cases where the fits are very frequent that we may most readily, and with greatest probability of truth, draw conclusions respecting the effects of remedies. If a patient have had for some time one or more fits daily in a confirmed manner; and if, shortly after commencing the use of a remedy, the fits diminish considerably in frequency and violence, or cease entirely,—this we may reasonably ascribe to the influence of the remedy. And this conclusion might very usefully be tested by omitting the remedy for a time, and resuming it: the test would be highly confirmatory of the conclusion, if, during the cessation of its use, unfavourable symptoms showed themselves, which, after its resumption, disappeared.

A good deal of reliance may be placed on the convictions of some patients themselves as to the good or bad effects of particular remedies. If the patient expresses a strong opinion respecting a particular remedy, the practitioner ought to be influenced by it, and more especially if he adheres to this opinion after the use of the remedy has been long continued, or if he expresses a strong desire to return to the remedy after it had been discontinued.

Hitherto the search has been for some remedy which would cure epilepsy as quinine cures ague, or even as iodide of potassium cures syphilitic periostitis;—something which, when introduced into the system, would kill or neutralise the abnormal matter which is ever being formed, or would stop its formation. This search, which has now been continued for so many years in vain, we must, nevertheless, not abandon. It may be that a remedy of this kind may yet be vouchsafed to us, nor can one conceive a more inestimable blessing for mankind. Among the vast stores of the vegetable kingdom, there may yet be discovered some subtle agent—perhaps some alkaloid —readily assimilable by the brain, which may exercise the beneficial influence so earnestly to be desired, and diminish or remove this dreadful scourge.

Hitherto, I say, our search for a specific against epilepsy has been in vain; for who will venture to say that, out of the long list of anti-epileptic remedies with which our materia medica supplies us, any one really deserves the name? Many of the mineral and vegetable tonics do good for a time: valerian has acquired a great name, and many authors of repute relate cases apparently cured under its influence; in the present day we are able to administer *valerianates*, in which valerianic acid (probably the active principles of valerian) is in combination with zinc, or iron, or quinine.

It is not my intention to enter into any comparison of the value of the countless number of remedies which have been at various times suggested for the relief or cure of this malady. I shall content myself with remarking that it is very important for the practitioner to provide himself with a good list of remedies, that he may not appear to his patient to be wanting in resources; and that, by changing the remedy from time to time, he may keep up the hopes of his patient, and secure his confidence. As Dr. M. Hall remarks, with great justice, " the confidence of the patient is a security against many baneful emotions, and time is gained for Nature to cure the disease." I woud add this remark by way of precaution, that, in the employment of the various reputed anti-epileptic remedies, the practitioner should employ those chiefly which he knows will do no harm, and that he should abstain from, or use with great caution, such remedies as exercise a known effect on other functions, and which may perchance affect them injuriously.

Very lately, my friend Mr. Salter, of Poole, whose sound judgment and great experience give great weight to his opinions, has directed the attention of the profession to the virtues of the Cotyledon Umbilicus as an anti-epileptic. He has narrated one very striking case as having apparently yielded to the influence of the remedy. The best form for its administration is no doubt the expressed juice of the fresh plant, which may be given in ounce or larger doses two or three times a day; or in the form of inspissated juice, as now prepared by Mr. Hooper, of which Mr. Salter states that half a drachm is equivalent to an ounce of the fresh juice. I hope this remedy will be extensively tried: it is one of those which, if it do not cure, at least is not likely to exercise an injurious influence on the constitution of the patient.

I am not aware that any of the means proposed to check a fit, once it has begun, have been attended with success With our present experience it seems to me clear that the best practice in the fit is to abstain from interference, every precaution having first been taken to protect the patient from injury. Bleeding in or after the fit is certainly fraught with great dangers, and the plan of pressing the carotids, proposed long ago by Dr. Parry, can clearly have but little influence as long as the vertebrals remain free, nor is it by any means certain that the stoppage of the circulation through them may not in many cases tend rather to increase the evil.

In the general treatment of epilepsy, the practitioner must ever keep in view the three following objects: first, to remove sources of irritation, of disturbance of general nutrition, and consequently of contamination of the blood; secondly, by hygienic and moral means, to promote a healthy frame of body and mind; and, lastly, to find, if possible, some means of preventing the access of the fits, with a view to breaking the habit of their frequent periodical recurrence.

I need not extend this already too long lecture by enlarging upon the various means by which peripheral sources of irritation or of contamination may be removed. It will be the duty of the practitioner to investigate with great diligence all the functions—digestive, sexual, that of the circulation, the skin, the kidneys,—and direct his special attention to such as may indicate a deranged state.

To enforce a good system of hygienic and moral rules, it is absolutely necessary that the practitioner should demand and obtain a complete control over his patient. He should regulate with the utmost precision the ingesta, both as to quality and quantity—the times of rising and of retiring to rest—the hours of sleep—the time of meals—the amount and period of exercise—the amusements—the nature and amount of study; and the aim of his hygienic system should be to invigorate the nervous system, and to promote by every means a healthy and vigorous nutrition: while that of his moral management should be to tranquillize the mind, to encourage hope, and to promote cheerfulness. It is from such a system, fathfully carried out and diligently enforced, that the greatest good may be anticipated for the epileptic patient.

To find some means of checking or of postponing the fit, is an object of great importance. In general, the nervous system and the mental functions suffer most when the fits are most frequent. If, then, the fits can be considerably reduced in number,—if, as it were, they can be kept at bay,—surely the patient cannot fail to be a great gainer.

Shortly after the anæsthetic powers of sulphuric ether became known in this country, and after I had satisfied myself, by the experiments which I referred to in a former lecture, of its great power in depolarizing the nervous centres, or preventing them from assuming a highly polar state, I determined to ascertain what influence its inhalation in the same manner as for surgical operations might have in checking the access of the epileptic paroxysm, or in diminishing the excitability of the nervous system. Although I have since learnt that about the same time it was tried in France, I was not aware of these trials at the time, nor have I since seen any satisfactory account of the results of them.

The first case which presented itself was one of epilepsy, in which the fits were preceded and followed by mania. The patient was a young girl, aged 17: the fits were of frequent occurrence,—twice a week, and she was subject to them for seven years. Within the last year the fits were accompanied by the maniacal state. This girl had been in a maniacal state for six days prior to her admission into the hospital; she was very violent, attempting to bite every one who came near her. She had even bitten herself.

In this case I administered ether on a sponge, holding it tightly over the mouth. The effect, to my great astonishment, and that of the bystanders, was instantaneous. Within a minute, noted by the watch, the patient fell off into a profound and placid sleep, which lasted eight minutes. She then awoke, and seemed disposed to be violent as before. It was necessary to administer the ether five times, after which prolonged sleep was produced. She slept well that night, and from this time became quite manageable and controllable: she continued for three or four weeks in the hospital, and although she had two or three fits there was no return of the maniacal state.

I have since had many opportunities of administering ether, and subsequently chloroform, in cases of epilepsy. The cases which I have selected have been those in which, as in the case just related, the paroxysms have been accompanied by mania, or in which the paroxysms have been of frequent occurrence—daily, several times in a day, once or oftener in a week. In these cases I have administered chloroform daily, often twice, sometimes three times a day, and always producing the full effect. I have not met with any instance of untoward result in some twenty-five cases; and the general conclusion at which I have arrived is this, that the frequent administration of the chloroform does no harm to the brain, and that it undoubtedly diminishes the frequency of the fits, and exercises a very marked control over the maniacal state.

I have given it in cases in which there could be no doubt of the existence of organic disease within the cranium, either meningeal or cerebral, and with decided benefit. One old man, who had all the symptoms of diseased cerebral arteries, with, perhaps, some amount of white softening, and severe epileptic fits, was distinctly the better for the inhalations, and became more intelligent, and his fits less frequent.

In puerperal convulsions, chloroform may be administered with advantage. I know of several cases which occurred in the practice of others, in which the fit yielded to the influence of the chloroform. My friend Dr. Simpson, of Edinburgh, informs me that, among upwards of two hundred women whom he had delivered under chloroform, he has had no case of convulsions. In the epileptic convulsions of children also it may be used. Shortly after I began to use ether in epilepsy, my friend Mr. Ceeley, of Aylesbury, informed me that he had tried it with decided success in a case of infantile convulsions; and Dr. Simpson tells me that Dr. Robertson, President of the College of Physicians in Edinburgh, has administered chloroform in infantile convulsions with great success.

The administration of chloroform in epilepsy requires further clinical research. Upon this subject I am at present engaged, and hope, at some future period, to lay my results in a detailed form before my professional brethren. Perhaps some other anæsthetic may be found better suited to epilepsy than chloroform. I am not without hope that some anti-epileptic agents—valerianic acid or valerianates—may be more efficaciously administered through the inhalation of chloroform than by the mouth. Mr. Savory, of Bond Street, has sent me some specimens of valerianates held in solution by chloroform ; but whether these substances will volatilize with the chloroform so as to admit of their introduction into the system in sufficient quantity, I have yet to learn.

I need scarcely remark, and yet I feel that I ought not to conclude without doing so, that chloroform must not be used without some careful precautions. One cardinal point is, that in its administration atmospheric air should be at the same time allowed to be freely inhaled : another point is, that the administrator should not be eager to obtain a rapid effect, although he should aim at obtaining a full effect ; a third, that the recipient should always be placed, during the administration of the vapour, in the horizontal posture ; and, lastly, the practitioner should abstain from administering it in feeble cases, where the heart is diseased or feeble, and the circulation languid or otherwise disturbed : and in all cases he should bear in mind that chloroform is a very depressing agent, and he should provide accordingly.

FINIS.